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A survey of the audio-visual aids being used by the Louisville white fourth, fifth, and sixth grade teachers.

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A SURVEY OF THE AUDIO-VISUAL AIDS BEING USED BY THE LOUISVILLE WHITE FOURTH, FIFTH, AND SIXTH GRADE TEACHERS

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A SURVEY OF THE AUDIO-VISUAL AIDS BEING USED BY THE LOUISVILLE WHITE FOURTH, FIFTH, AND SIXTH GRADE TEACHERS

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CHAPTER I

STATEMENT OF PROBLEM

The investigator has been a teacher in the Louisville elementary schools for the last seventeen years, sixteen of which have been at her present school, the George W. Morris. This school is composed of many children whose parents have comé from foreign lands such as Syria, Italy, Poland, Russia, Greece and Germany. Besides the foreign element this school also has many retarded children. Therefore, in order to solve the varied problems of these two groups of children, the investigator turned more and more to the use of audio-visual aids, which she found very effective in her instruction. As her needs for more audio-visual aid materials increased, the writer became concerned with the needs of other Louisville elementary teachers, and thus decided to make a survey of the audio-visual aid materials being used by them. This study is therefore concerned with:

A. What are the different types of audio-visual aids available to the Louisville elementary teachers? What are the advantages and limitations of these aids in instruction?

B. What are some of the important scientific

experiments that have been made which evaluate the uses of audio-visual aids in the classroom?

C. What are the types, the frequencies of use, and the methods of presentation of the audio-visual aids being used by the Louisville white fourth, fifth, and sixth grade teachers? What are the aids in which these teachers are most interested and regarding which do they desire more information? In what ways are audio-visual aids a valuable media when supplemented with books in instruction?

D. What are the suggestions and recommendations for future use of this type of material as revealed by the questionnaire mailed to these teachers?

In order to answer "A" and "B" a study was made of all the important literature on this subject. In reviewing the experiments, the investigator confined herself to those she considered most outstanding. This information is given in Chapter IV.

In order to answer "C" and "D" a questionnaire was sent to every Louisville white fourth, fifth, and sixth grade teacher. The results of this questionnaire are found in Chapter V. A copy of this questionnaire is included in the appendix.

As far as the writer has been able to determine, no survey of this type has ever been made in the Louisville public schools. While the writer does not contend that the results of this survey are all inclusive, these findings do reveal the prevalent practices of the Louisville teachers. It is hoped that others, also interested in the field of audio-visual aids, will be stimulated by this study to continue more research in the Louisville schools along this problem.

Before discussing the different types of audio-visual aids found in the Louisville elementary schools, a brief history of this movement will be presented in the following chapter.

HISTORY OF AUDIO-VISUAL AID MOVEMENT

CHAPTER II

HISTORY OF AUDIO-VISUAL AID MOVEMENT

Some people have criticized visual aids as being new "frills and fads" of education which would soon disappear from our schools. However, if the history of visual aids is traced, it is easily perceived that they are far from new but very, very old. In fact, probably the first visual aids were used by prehistoric man - crude but plain drawings made on the walls of the caves either to warn his fellow-man of approaching danger or depicting events in his life which he wanted portrayed. Many caves containing such drawings have been found in France and Spain.

Later the Egyptians continued using "visual aids" for on the walls of the pyramids, temples, and obelisks were found pictures to depict the life of the Egyptians. The Egyptians also developed a picture-language which proved of great assistance in revealing the history of the Nile Valley to future historians.

> The Greeks developed intellectual instruction in which objective materials as well as the spoken and written word taught history and civic ideals. Music and the drama, painting and sculpture were not merely for artistic expression. Music was used to induce a war-like, peaceful, or

> luxurious mood; the drama was visual instruction in moral and political attitudes; painting and sculpture, especially in public buildings, commemorated historical and religious events.[1]

The ancient Greeks also were among the first to utilize the journey as an aid in instruction, for they soon realized the value of going direct to the natural situation for first-hand knowledge.

"In that age it was a common sight in Athens and its environs to see the venerable Socrates and his disciples here and there in the practice of observation, discussion, and meditation."[2]

The Romans realized the value of visual aids employing art (sculpturing and bas relief on columns) to inform the populace of such important events as victories in war, or acts of heroism in battle. Visual aids were also used in some of the Roman schools.

> Cicero approved of visual forms as devices for remembering abstractions. Seneca favored visual teaching on the ground that men believe visual above other perceptions. Quintilian, who recognized that interest helps the child to absorb knowledge, conceived of teaching the alphabet by games played with solid letters carved out of wood or ivory blocks.[3]

Coming down to the Middle Ages the Church conveyed many messages of faith and piety to their followers by means of stained glass windows, painting, and sculpturing.

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1. Wendell Thomas, "The Stream of Perceptual Teaching," Educational Screen, November, 1939, p. 326.
2. Charles Hoban, Charles Hoban Jr., and Samuel Zisman, Visualizing the Curriculum (New York: The Cordon Company, 1937), p. 30.
3. Wendell Thomas, op. cit., p. 326.

> During an age of faith when the paramount ideal was an exposition of Christianity, when manuscript books were few, possessed only by scholars and by the extremely wealthy, it is well to note the practical dependence upon the "visual" alone as the chief means of instructing.
>
> At no time did the invention of printing put an end to this stream of reliance upon the visual. It is quite apparent, however, that after the middle of the Fifteenth Century the old arts of sculpture and stained glass visibly declined. But conversely the printed book and its illustrations steadily improved.[4]

In 1658 Comenius published "Orbis Pictus", the first illustrated textbook for children, as he believed that words alone were insufficient for learning.

> He, therefore, appealed to the eye and the mind of the pupil through the skill of the artist. Words were clarified and impressed by pictures or by the thing itself when possible. His World Illustrated became the most popular school book in Europe and held that place of distinction for nearly a century.[5]

Pierre Nicole, a contemporary of Comenius, believed that children should be taught through their senses, and that a new subject should always be approached by means of an appeal to their sight and hearing.[6] He believed this so thoroughly that such visual aids as maps, pictures, globes and flashcards were constantly employed in his teaching.

In 1690 the "New England Primer" was published which was used for over a hundred years. In 1710 "The

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4. Manson Milner Brien, "Notes on the Historical Background of Visual Education," Education, 61:322 February, 1941.
5. Don Carlos Ellis, and Laura Thornborough, Motion Pictures in Education (New York: Thomas Y. Crowell Company, 1923), p.2.
6. Manson Milner Brien, op. cit., pp. 323-324.

London Spelling Book" was published. It contained a tree of knowledge and an illustrated alphabet which were used to teach lessons in morals.

Due to the great increase in the printing of books, many of which were sold at lowered rates, the schools relied more and more upon them - in fact so much so that courses of study were later built around specific textbooks. Some outstanding educators at this time saw the danger of too much verbalism and dependence upon textbooks.

> Pestalozzi and Rousseau, representing the naturalist school, taught that the child should learn life by living and preached a "return to nature." Froebel, who put Pestalozzi's theories into practice, believed in developing the senses of sight and touch and employed visual aids in his famous kindergarten.[7]

Another discovery which furthered the cause of visual aids was that of Tom Wedgwood's in 1802. "He discovered the way to make photographic plates in which the action of light on the plate left a record of the object to which the plate was exposed. However, it was not until 1822 that Niepce, a Frenchman, found a method of fixing the pictures so that they would be permanent records."[8]

This invention was the forerunner of the stereopticon, which was introduced about 1893. Also in 1893 was

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7. Don Carlos Ellis, and Laura Thornborough, op. cit., p. 3.
8. Walter Bradley, Visual Aids to Education (Unpublished Master's thesis, The University of Michigan, 1937).

introduced the kinetoscope, which had been invented by Thomas Edison. The observer viewed the tiny pictures as they passed through a slit in a rapidly rotating shutter, giving the effect of continuous motion. This kinetoscope was based on a fundamental principle known for thousands of years.

> This principle is based on the fact that when an object at which one is looking is suddenly removed, the image remains on the retina of the eye for a fractional part of a second. This is sometimes referred to as defect in vision or persistence of vision. Now when a series of different still pictures flash before the eye, they seem to have acquired the quality of motion.[9]

While the development of the motion picture is new, the idea behind it is old. As long ago as 65 B. C., Lucretius in his Rerum Natura wrote of "images that appeared to move", and Ptolemy, the Greek philosopher, wrote a series of books on optics about 130 A. D., in which he spoke of persistence of vision and described simple apparatus by means of which the phenomenon might be observed.[10]

The invention of the motion picture projector enabled pictures to be flashed upon the screen. These first "movies" were very short - about ten minutes in length - and were usually viewed by a small gathering which had convened for this special occasion.

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9. Harry McKown, and Alvin Roberts, Audio-Visual Aids to Instruction (New York and London: McGraw-Hill Book Company, 1940), p. 146.
10. Don Carlos Ellis, and Laura Thornborough, op. cit., p. 6.

> In one of the early discussions of motion pictures, the story is told of a group which had gathered in one of the small picture houses to see motion pictures of the ocean waves coming in to the shore. The pictures were so realistic that those who were seated on the front rows actually bolted, causing much damage to the furniture and to others present.[11]

Even though more attention had been devoted to the development of motion pictures for entertainment purposes, their educational value was never lost sight of.

> The Federal Government was among the first to utilize motion pictures on an extended scale for instruction. The United States Reclamation Service seems to have been the pioneer among the bureaus at Washington to take up this work, and that bureau exhibited at the Jamestown Exposition 1907 films showing the work of the Government in reclaiming arid lands.
>
> The U. S. Department of Agriculture was soon to follow and was the first branch of the Government to establish a laboratory of its own for the production of educational films. Pictures on plant and animal production, forestry, plant and animal diseases, home economics, dairying, food chemistry, road building and numerous other subjects covered by the varied activities of the Department were made.[12]

Although this splendid beginning was made by the Government in the field of educational films, still education lagged behind, for only a few schools utilized them. However, the high cost of projection equipment, the fire hazard present in the thirty-five millimeter film (which was the only one being used at that time) and the lack of

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11. Ellsworth C. Dent, The Audio-Visual Handbook (Chicago: The Society for Visual Education, 1939), p. 94.
12. Don Carlos Ellis, and Laura Thornborough, op. cit., p. 17.

good films for educational purposes may have accounted for many schools not availing themselves of this medium. But even up to the present time education has lagged behind in its use of this powerful aid.

> According to a recent report on "The Motion Picture in Education", prepared and published by the American Council on Education, there are approximately 16,000,000 school children attending 82,000 schools which are known to be equipped with electricity. These 16,000,000 pupils are served by 10,000 projectors, many of which are obsolete, and about 10,000 films, the educational value of which is unknown.
>
> Many reasons have been advanced to explain the tremendous gap between the development of the motion picture for the theater and the extent of its use in education. While it is true that in the past five years educational developments have been more rapid and we now stand on the threshold of even more significant advances, it is nevertheless perfectly plain that the schools are far behind the theater in the use of motion pictures.
>
> One of the most obvious reasons for this situation is the fact that theaters are run for profit while the schools are not. A second reason is that schools are conservative. They are slow to buy expensive equipment which they feel is not indispensable to their work. Even though numerous experiments have demonstrated the superior merits and teaching values of motion pictures, yet these experiments have not convinced the educational world of their absolute necessity for carrying on the work of the schools. The film is still regarded as a luxury and not a necessity. A third reason why the schools have failed to keep pace with the theater in the use of films is lack of teachers who are trained to use them effectively.[13]

Reviewing briefly the history of the audio aids

13. Mark May, "Educational Possibilities of Motion Pictures," The Journal of Educational Sociology, November, 1937. p. 151.

examined in this study, it is interesting to note that the history of the phonograph also dated back to ancient times.

> From Egypt comes the first corroborated account of vocal sounds issuing from a thing without life, more than 1,500 years before the beginning of the Christian era. An ancient Chinese book of 2,000 years ago contains a story of a curious box into which a Chinese prince was supposed to have spoken his message which he sent by a trusty messenger to his friend. When the friend opened the box, so the legend states, he could actually hear the words which had been spoken into it.[14]

Thomas A. Edison is credited with the invention of the tin-foil cylinder machine in 1877, and five years later, working with a wax cylinder, he produced the machine which later became known as the phonograph.[15]

Although many improvements were made, the phonograph, like the motion picture, was used at first for entertainment purposes only. "So far as is known, the first phonograph record was used in a classroom for instructional purposes in 1909, in the public schools of Milwaukee, Wisconsin."[16] While schools were slow in adopting this aid, phonographs are now used quite extensively in all schools throughout the United States.

Similar to the phonograph, the radio has steadily progressed from its first ear-phone sets in use twenty

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14. Ellsworth C. Dent, op. cit., p. 128.
15. Harry McKown, and Alvin Roberts, op. cit., p. 232.
16. Ellsworth C. Dent, op. cit., p. 128.

years ago, to its present "stream-lined" version found in millions of homes today.

> Broadcasting as we know it today had its birth on November 2, 1920 when the returns of the presidential election of that year were broadcast from Station KDKA in East Pittsburgh. So successful was this initial effort that other stations came on the air in rapid succession until 1922 when there were four hundred of them operating. By July 1, 1936 the number of broadcasting stations had grown to 656.[17]

Again education lagged behind in adopting this powerful influence for classroom use, but in recent years many teachers have utilized the radio very effectively in their classroom instruction.

Reviewing briefly the history of the audio-visual aid movement, it will be noted that the use of the concrete and realistic have been prominent in the educational systems of the past.

Examining the present century it will be noted that the teachings of such eminent educators as Dewey and Kilpatrick have caused many teachers to question their philosophies and revise their methods of instruction. Dewey's philosophy, stressing school as a place in which the child lives and learns day by day and not a place in which he is preparing for adult life, has again brought visual-sensory instruction into the forefront. According

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17. John J. Floherty, On the Air, the Story of Radio (New York: Doubleday, Doran and Company, 1938), p. 14.

to Thomas, five cultural forces have caused audio-visual aids to gain in usage. These are:

1. The rapid development of experimental science, technical industry, travel, communication, and knowledge of other lands, making a more economical presentation of facts an educational necessity.

2. Rapid urbanization, making it difficult for city and country school children to understand each other's life by means of the printed page alone.

3. A rapid enlistment in high schools and evening schools of persons having slight literary tradition, and therefore largely dependent on perceptual aids for actual learning.

4. The rapid use of educational psychology, with its study of interest, attention, learning, recall, and individual differences, demonstrating the urgent need for new techniques of teaching, especially for backward pupils.

5. A rapid increase in photographic research and invention notably in the field of the cinema, leading to the tremendous growth of the motion picture industry, with important consequences for education.[18]

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18. Wendell Thomas, op. cit., p. 327.

TYPES OF AUDIO-VISUAL AIDS EXAMINED IN THE SURVEY - THEIR ADVANTAGES AND LIMITATIONS IN INSTRUCTION

CHAPTER III

TYPES OF AUDIO-VISUAL AIDS EXAMINED IN THE SURVEY - THEIR ADVANTAGES AND LIMITATIONS IN INSTRUCTION

This survey was based on the following fourteen different types of audio-visual aids - school excursions; objects, specimens, and models; graphs, charts and diagrams; maps and globes; mounted pictures; opaque projector; stereoscopes; lantern slides; filmstrips; motion pictures; microscope slides; phonograph records; and radio. These fourteen types were selected for the following reasons: (1) the majority of authorities classify them as audio-visual aids; (2) these aids are available to the Louisville teachers. The writer, therefore, deemed it pertinent to include a chapter stating the values and limitations of each of the above types in teaching. As there are some advantages and principles basic to the successful use of all audio-visual aids, a resume of these will be submitted herewith.

Advantages

Audio-visual aids -

1. Are easy to understand and master because they are concrete.

2. Make accessible to the learners that which is inaccessible.

3. Provide an economy of time as they simplify the teaching processes and reduce the explanations made by the teacher.

4. Arouse very keen interest and aid in developing desirable attitudes on the part of the learner.

5. Usually stimulate the learner to further activities.

6. Enrish the whole teaching program.[1]

While audio-visual aids contain the advantages listed above, yet there are certain important principles to be considered in their use.

Principles of Use

Audio-visual aids -

1. Must be "tools to learning", the means to an end and not the end itself.

2. Must be carefully selected by the teacher to serve a specific function in her daily instruction.

3. Must be carefully prepared by the teacher to ensure greatest value in their use.

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1. Harry McKown, and Alvin Roberts, Audio-Visual Aids to Instruction. (New York and London: McGraw-Hill Book Company, 1940). pp. 20-36.

4. Must be appropriate to the age experience of the pupils.

5. Must be integrated with the curriculum or the course of study to be most effective.

6. Must lead to further learning situations - discussions, experiments, dramatizations or readings.

7. Must be varied in their use as each aid serves a definite purpose.[2]

Having cited the advantages and principles peculiar to all audio-visual aids, a more specific explanation follows.

School Journey

The school journey is the most valuable of all visual aids as it takes the child directly to the learning situation. Here he sees for himself how the evening paper is printed, how milk is pasteurized, how baseball bats are manufactured, or dozens of other similar experiences. There are several kinds of trips available to Louisville teachers - excursions to industrial plants, visits to parks, journeys to civic institutions, trips to observe some physical feature of the earth (rivers, hills, clouds, stars), and trips to study one's community.

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2. Ibid., pp. 38-52.

In fact a study of one's community is very beneficial as it quite often deepens the social understanding of the pupil, which may ultimately contribute to the improvement of living in his locality. Harap makes this significant comment:

> It seems safe to predict that the emerging curriculum will be concerned with the improvement of living in the community. The pupil will have increasing contact with his natural and social environment. The whole community will serve as a laboratory for learning. The school will be a community of children within a larger social community, and its program will touch every phase of group experience - home life, government, industry, commerce, recreation, transportation, communication, and organized social life. The school of the future will indeed be a community school.[3]

In planning a school trip much preparation is necessary on the part of the pupils and teacher.

> Regardless of the nature of the excursion, advance preparation, the proper attitude during the trip, and carefully prepared reports are important essentials. The safety of the pupils must be given consideration. The pupils should have clearly in mind the purpose of the trip, the general plan to be followed, their individual responsibilities for the success of the trip, and such preparation as is necessary to guide them in their observation. Details should be so planned that the focal point of every pupil's attention will be on the thing to be learned during the specific parts of the trip where learning should take place.[4]

To be of most value to the pupils, the journey must be followed by a discussion, experimentation, or some

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3. Henry Harap, "Scope of an Effective School Program for Utilizing Community Resources," Elementary School Principal, Eighteenth Year Book, July, 1939, p. 457.
4. Cline M. Koon, School Use of Visual Aids (Washington, D.C. U.S. Dept. of the Interior, Dept. of Education, 1938). p. 24.

other learning situation. The advantages of the school journey can be stated thus:

1. The journey presents subjects being studied in their natural setting.

2. It provides concrete evidence which is necessary for pupil understanding.

3. It correlates the school subjects with actual life.

4. It develops keenness of observation.

5. It abolishes the formal schoolroom atmosphere and utilizes the socialized lesson attitudes instead.

There are several disadvantages, however, in taking a group of children on a trip, some of which are:

1. Inclement weather often prevents or postpones a trip.

2. Lack of transportation facilities hinders journey.

3. Children are not always able to see specific items visited because of too large a number on the trip, or lack of cooperation on the part of personnel at places visited.

4. The guide is often not trained to talk to

children in terms they are able to comprehend.

5. Sometimes there is so much noise from the machinery that the guide cannot be heard by the children.

6. Too much time is consumed in getting to and from the objective.

7. Teachers usually are unable to go on journeys during school time and often cannot make trips after school hours.

However, the learning which results from a successful trip outweighs the disadvantages to such an extent that this medium should be used extensively.

Objects, Specimens, and Models

Objects, specimens, and models are other media which, when properly used, give decided value to education as they provide concrete experiences instead of abstract. Dent defines these three aids as follows:

> The object is the thing itself - plant, fruit, vegetable, bird, animal, etc. - that can be brought into the classroom for study. The specimen is a sample, a part intended to show quality, one of several things which represent all - for example, a piece of coal, wood, cloth, etc. The model is a small-size representation, as for example a building, engine, heart, lungs, globe, etc.[5]

There are three distinct advantages in using these aids in instruction, viz.

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5. Ellsworth C. Dent, The Audio-Visual Handbook (Chicago: The Society for Visual Education, 1939). p. 26.

1. An object, specimen, or model gives the pupil first-hand experience with the item.

2. By collecting and handling of these materials children gain an understanding of their characteristics and uses.

3. These aids can be very useful in helping the child to understand the elements of his environment and the relationship of these elements.

The limitations of these aids, as stated by McKown and Roberts, are:

1. They are out of their functional relationships.

2. They are larger or smaller than the original.

3. They are oversimplified.[6]

Just how valuable these aids are in teaching will, of course, depend on the teacher's proper use and choice.

Graphs, Charts, and Diagrams

Graphs, charts, and diagrams also have specific values in education if properly selected and presented. Their main advantage lies in the fact that they very clearly illustrate quantitative data - data which are usually difficult for the child to understand. A simple line,

6. Harry McKown, and Alvin Roberts, op. cit., p. 59.

circle, bar graph, chart, or diagram enables a pupil to comprehend statistical information quite readily. These aids are very valuable for this type of information. The limitations of these aids, as noted by Dent, are:

1. The chart frequently is not large enough to be seen by all.

2. The chart, graph, or diagram is limited in the scope of material which can be presented by means of it.

3. Unless students have been trained how to read charts, graphs, and tables the instructor will have to spend considerable time in explanation.[7]

Maps and Globes

Since maps and globes are practically considered as necessities in teaching, many schools have been furnished with these aids.

> Maps, as we shall consider them here, are graphic representations of the surface of the earth, or particular sections of it, showing the relative size and positions of the parts represented. Directly and indirectly maps reveal an enormous amount of information - sizes, shapes, and locations of areas, distribution of peoples, land, water, animal and vegetable life, climate, economic resources, and other natural phenomena, and the associations of these many elements.[8]

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7. Ellsworth C. Dent, op. cit., p. 31.
8. Harry McKown, and Alvin Roberts, op. cit., pp. 71-72.

The main advantages in using maps are:

1. Maps enable the pupils to comprehend more readily abstract concepts of size and direction.

2. Maps reduce the scale of areas and distances so that what is otherwise intangible becomes meaningful.[9]

> The globe is a type of map more accurate than the flat map because it actually resembles the earth in shape, and water and land masses are shown in proper relative sizes and positioms. When a spherical or three-dimensional representation is translated into a flat or two-dimensional map distortions are inevitable.[10]

Besides this main value stated above, the globe can be used as follows:

1. To teach the movements of the earth.

2. To teach changes in time.

3. To teach the meaning of longitude and latitude.

Though maps and globes are of untold value in instruction, there are several factors to be considered in their use. These are:

1. The symbols and terms used on maps and globes are sometimes so difficult that pupils need much training in their use.

2. Since wall maps and globes can be seen and

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9. Charles Hoban, Charles Hoban, Jr., and Samuel Zisman, Visualizing the Curriculum (New York: The Cordon Company, 1937). p. 227.
10. Harry McKown, and Alvin Roberts, op. cit., p. 72.

studied by only a few children at a time, they are most effectively used in small groups.

Mounted Pictures

Inasmuch as mounted pictures are so plentiful and readily available, a large number of teachers utilize this medium in their teaching. Teachers recognize the benefits gained in using this aid, perhaps more so than obtains in using other aids. McKown and Roberts list the following values of flat pictures:

1. They are so real and vivid.
2. They are easily available.
3. They are convenient to use.
4. They are inexpensive.
5. They can be used repeatedly.[11]

Although a great number of teachers employ pictures very extensively in their instruction, many err in the method of using them by:

1. Using too many pictures at a time.
2. Using pictures that are poor in quality.
3. Using pictures unsuited to the mental development of the child.
4. Using pictures not adapted to the specific situation.

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11. Ibid., p. 104.

However, if teachers will carefully take the time to select, mount, and file pictures, their efforts will be repaid manyfold by the advantages gained in the use of this aid.

Stereoscopes

Although stereoscopes were used in the home for entertainment as far back as 1893, they have not been used extensively in the schools, probably because so few teachers realize how valuable they are as a teaching aid. These are the only pictures which give depth, thus imparting to the children a feeling of reality which is lacking in the other visual aids. In fact this sense of reality is so vivid that the writer has often heard such remarks as these from children studying stereographs: "That man will fall off the cliff if he takes another step." "We feel like we can touch those trees and flowers." The important advantages of stereoscopes are:

1. They present a more realistic view than is given in any other type of picture.

2. They are extremely valuable for individual instruction. (However, many teachers regard this usage as a detriment in that too much time is consumed in this manner.)

No doubt with the advent of more group and individual instruction in the public schools, teachers will probably recognize the real value of stereoscopes and will become more skilled in their use.

Lantern Slides

Lantern slides is another medium which is beneficial to education. These slides usually are made of glass upon which a picture is printed. The slide is then projected upon a screen and can be used very effectively for group study and discussion.

The advantages of lantern slides are as follows:

1. Lantern slides present material which is intended to clarify or supplement subject matter, or to make instruction on units of work more meaningful.

2. Lantern slides may be left on the screen for any desired length of time.

3. Lantern slides may be used quite successfully in a room which has not been darkened thoroughly.

4. Lantern slide projectors are very easy to operate.

The limitations of lantern slides are:

1. Due to the fact that lantern slides are made of glass, they are easily broken.

2. Lantern slides require adequate space for filing or storing.

3. Lantern slides are more expensive than some other types of visual aids, such as filmstrips, mounted pictures, or stereographs.

Opaque Projector

The opaque projector is an instrument which, by reflection, projects pictures, post cards, maps, and other pictorial material.

> Materials for use in it may be collected from hundreds of sources, including books, magazines, post cards, travel bulletins, catalogs, or nearly anything which has in it an illustration worthy of class consideration. Ordinary typed material, drawings, diagrams, and graphic presentations of all kinds may be used in it quite satisfactorily.[12]

There are three outstanding features of the opaque projector which cause it to be invaluable in classroom instruction. They are:

1. The opaque projector will project almost anything to a screen for group study.

2. Even colored pictures are reproduced accurately by the opaque projector.

3. Because of the abundance and availability

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12. Ellsworth C. Dent, op. cit., pp. 44-45.

of material which can be used satisfactorily in this instrument, the opaque projector is quite economical.

Although the opaque projector can claim the above advantages, it has the following limitations:

1. Its greatest limitation is that a thoroughly darkened room is necessary for projection.

2. The projector is rather large and thus is difficult to handle.

It will be noted, from the above, that these two limitations are trivial compared to its many advantages, and a skillful teacher doubtlessly will find means of overcoming them.

Filmstrips

Filmstrips serve about the same purpose as lantern slides, for they can also be used very effectively for discussion or study with a class or group.

> It differs from the glass lantern slides by printing the pictures in series on 35-mm. film. The film pictures, therefore, are reduced to about 3/4" x 1", or 1" to 1-1/2" in size, and their cost, weight, and storage space are reduced correspondingly. Although the slides are in fixed series, slight projector adjustment makes it possible to show the pictures in any order which may be desired.[13]

Filmstrips have many qualities which make them

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13. Ibid., p. 81.

very desirable aids in teaching, some of which are:

1. The machine is very light in weight and may be easily moved from room to room.

2. Filmstrips also are light in weight.

3. Filmstrips require a minimum of space for storage.

4. Both the projector and filmstrips are comparatively inexpensive.

5. Filmstrips are easily obtainable.

Filmstrips have the following limitations:

1. They require a totally darkened room.

2. As the pictures are in a series, they are not so flexible for use as are slides.

Motion Pictures

One of the newest of the visual aids is the motion picture, but already it is recognized as one of the most powerful teaching instruments yet invented. It is the best substitute for the real experience and since many experiences are inaccessible to children, it is indeed a wonderful substitute. But the motion picture should only be employed where motion is necessary inasmuch as a picture of an inanimate object can be studied just as thoroughly by means of a lantern slide, stereoscope, or

mounted picture. McKown and Roberts state:

> The chief function of the motion picture is to depict motion and motion implies continuity. If motion is not an essential part of the representation, a still picture will serve instructional purposes more adequately. Motion may be classified as observable and unobservable. The motion film very effectively reproduces both. Through motion that is observable to the human eye, complete processes which normally extend over a long period of time and which take place in various sections of the country may be recorded on the motion-picture film and brought into the classroom. This is the only method by which such information can be made available for the teacher's use.[14]

The motion picture can also portray happenings in nature which are either too slow or too rapid to be observed by the human eye as they actually occur. For example, the growth of a plant, the blooming of a bud, or the development of a butterfly occur so slowly that it is scarcely noticeable to the human eye. Yet many films portray this action very accurately and vividly.

Most people are familiar with slow motion pictures and readily realize their value. To be able to see a fast runner, a football game, or other similar incidents slowed down to such an extent that it can be observed closely makes that type of film very effective for a group studying this particular movement.

Much criticism has been directed against the use of

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14. Harry McKown, and Alvin Roberts, op. cit., pp. 148-149.

motion pictures in schools, and no doubt it was at first justifiable. But now with the introduction of fine educational films, and the acquisition of correct procedure in their use by many teachers, the motion picture should become an established asset in education.

It would appear that far too many teachers use motion pictures as a "picture show", overlooking the fact that the same careful preparation is necessary in their use as when utilizing books, pictures, or other types of audio-visual aids.

The chief advantages of motion pictures as listed by Dent are:

1. The moving picture has the unique advantage of depicting action or behavior, with its irresistible illusion of life and reality. It is however, an expensive visual aid and for that reason should be resorted to only when necessary (1) to show activity, which no other pictorial aid can actually portray, and (2) to provide such vicarious experiences as may be brought to us because we cannot get them in any other way.

2. The film has proved valuable to scientific workers by enabling them to reproduce processes and

analyze motion and movements for detailed study.

3. The film has value in presenting popular non-technical phases of the subject to those who have relatively little knowledge regarding it.

4. By means of the motion picture and the animated diagram, one can visualize the invisible.

5. The motion picture is very effective in publicity, drives, campaigns for social betterment and similar forms of propaganda.

6. The film is the best visual tool when the continuity of a process involving movement is to be seen.

7. The film is advantageous for purposes of vivid summary or general survey of a broad topic.

8. The film is unique in revealing, for the first time in the history of human learning, things which are too slow or too fast to be seen by the human eye.[15]

Limitations of the motion picture, as cited by Dent, are:

1. The film with its rapid-fire method of projection must be stopped, slowed up, or shown a second or third time if any real study and analysis of the

15. Ellsworth C. Dent, op. cit., p. 100

content is to be achieved.

2. Some moving pictures have a tendency to relegate the teacher into the background.

3. Continuity is definitely established. This may not fit the teaching plans but is not a serious problem to the teacher who is trained to use motion pictures effectively.

4. Films are perishable and do not stand wear and tear like some other visual aids.

5. The film, to be effective in the classroom, should be previewed by the teacher and followed up by definite study. Sometimes the teacher cannot get the film when it is needed most.

6. The film is used too often as a substitute for, rather than a supplement to, other methods of presentation.[16]

These limitations will probably appear insignificant when it is realized what tremendous influence films have on the lives of children.

Microscope Slides

Microscope slides, while somewhat different from the visual aids mentioned previously, also have a distinct value in instruction. The microscope is indeed of untold

16. Ibid., pp. 100-101.

value in teaching subjects of a scientific nature. A child has a much better conception of blood corpuscles, types of bacteria, or parts of a plant when observed under a microscope.

The microscope has three unique advantages which are:

1. It magnifies minute organisms too small to be seen and studied with the naked eye.

2. Through the use of a microscope a child gains a truer conception of organisms studied.

3. The use of the microscope practically always arouses keen interest and enthusiastic response on the part of the children.

The following items may be considered as limitations:

1. Microscope and slides are often too expensive to be purchased for classroom use.

2. To be used most effectively several microscopes are needed for each group.

Phonograph Records

Concerning audio aids the phonograph ranks high in use among teachers; in fact, according to Dent, phonograph records are used more extensively by schools today

than are any of the other types of audio-visual aids to instruction.[17] While records are of great help in teaching music and music appreciation, they can be successfully employed in many other subjects.

Outstanding advantages of phonograph records are:

1. They can be played whenever needed.

2. They can be played as many times as the situation demands.

3. They can be correlated with a great variety of subjects which make them extremely versatile.

4. They are now being made in unbreakable form.

Two disadvantages of phonograph records are:

1. Most records, especially those owned by schools at the present time, are easily broken.

2. They require ample space for storage.

Radio

While the radio is a new-comer in the field of audio aids, it, like the motion picture, has a tremendous influence on the lives of children and adults. The Czechoslovakian crisis, the present news broadcasts of this World War, or the fantastic broadcast from "Mars" easily demonstrate the power radio has to mould or change the thought and emotions of both child and adult. Such

17. Ibid., p. 129.

important events as the inauguration of the President of the United States or the historic speech of President Roosevelt before Congress on December 8, 1941, should be part of the experience of every child capable of comprehending these broadcasts.

The radio is valuable in teaching because of the following features:

1. It is capable of enriching all classroom work due to the variety of worth-while programs on the air.

2. It provides splendid opportunities for educating children in the wholesome use of leisure time.

3. It offers unlimited means for teaching children discrimination and judgment.

The radio is limited in its scope due to the following reasons:

1. Even though a teacher has advance knowledge of the type of program scheduled (music, art, lecture, or a play) she will still be unfamiliar with the exact treatment of the subject prior to the broadcast.

2. Many radio stations do not furnish manuals for broadcasts, thus prohibiting advance preparation

on the part of the teacher.

3. Teachers are not always able to arrange schedules so as to hear broadcasts.

4. In some instances reception is too poor to permit a class to listen to broadcast.

In order to overcome these limitations many schools are purchasing radio recordings, better known as transcriptions. These transcriptions can then be used by a teacher whenever she wishes and played as often as she desires.

As teachers realize the values to be gained through using the radio in instruction, this medium no doubt will be used more extensively.

It is hoped that this chapter has conveyed to the reader a better understanding of the different types of audio-visual aids available to the teaching profession. As numerous scientific experiments have been made proving the value of audio-visual aids in instruction, the writer deemed it pertinent to include a chapter dealing with this phase of the subject.

APPRAISAL OF AUDIO-VISUAL AIDS BASED ON SOME OUTSTANDING RESEARCH

CHAPTER IV

APPRAISAL OF AUDIO-VISUAL AIDS BASED ON SOME OUTSTANDING RESEARCH

Although visual aids date back to prehistoric times, yet it has been only in recent years that experiments have been conducted scientifically to determine their true value. This chapter deals with some of these experiments which, in the writer's opinion, prove the real worth of audio-visual aids.

Experiment of Harper and Otto to Evaluate Graphs in Instruction

Harper and Otto[1] carried on an experiment to evaluate graphic instruction materials.

Problem:

The experiment attempted to measure the value of instruction in the interpretation of simple graphs.

Procedure:

The experiment was carried on in the public schools of Wilmette, Illinois during February and March 1933.

> Four separate experiments were carried out involving the teaching of geography in the fifth and sixth grades over a six weeks' period. Three of the experiments had two control groups and one experimental group. One experiment had one control

1. R. A. Harper, Henry J. Otto, "An Evaluation of Graphic Instruction Materials," Thirteenth Yearbook, National Elementary Principal, June 1934; pp. 228-237.

and one experimental group. A total of 365 pupils were involved in the experiment.

The control and experimental groups were picked on the basis of median intelligence scores. In no case was there a significant difference in the median scores between the group in any one experiment.[2]

The fifth grade pupils studied a unit on the geography of southeastern United States; the control group covering this material as usual, i.e., using textbooks, discussions, reading and reports, while the experimental group had use of all the above plus eighteen supplementary graphs. The graphs were all related to the study and were presented at the most opportune times.

The sixth grade experiment was carried on in the same manner except that these children were studying the geography of Germany.

Three sets of tests were used to measure the outcomes of instruction. A record was also kept of the time required to teach the unit to each group in order to determine if graphs lengthened or shortened the teaching time of a unit.

Results:

The results of the tests showed that three of the experimental groups improved more than did their

2. Ibid., p. 229.

respective control groups, while one experimental group did not improve at all.

> The results of this study seem to indicate that the graph presents a different kind of information than is generally presented in the textbooks in geography. The texts used in this study seldom discussed the relative importance of various factors, the type of information which the graph presents.
>
> When in the course of geography study it is found desirable to present this type of comparative information, it would seem that the graph is the best median to use. Children in the fifth and sixth grades can derive this type of information from the graphs readily and are quite as much interested in graphs as they are in pictures or other types of visual material. Very little time need be spent in instruction in the use of graphs.[3]

As was stated in Chapter III, the stereoscope has certain distinct advantages. By means of it an individual is able to estimate distance and depth.

Experiment of J. J. Weber to Evaluate Stereographs in Instruction

J. J. Weber[4] made an experiment which attempted to measure the value of depth in the stereograph.

Problem:

A. Has the factor of stereoscopic perspective any educational value?

B. Does the element of color add to this value?

C. How does this value vary with the intelligence

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3. Ibid., p. 236.
4. J. J. Weber, Visual Aids in Education (Valparaiso, Indiana: Valparaiso University, 1930), pp. 120-124.

of the pupil?

Procedure:

The procedure involved the showing of a series of scenes with and without perspective and carefully noting the observation span in seconds. (By measuring the pupil's voluntary observation span, a fairly good notion of the appeal that any object or activity holds for him is recorded.)

Results:

> The factor of perspective lengthened the observation span by eight percent, on the average, and the addition of color increased it an additional six percent. It was also found that stereoscopic perspective varied inversely with the intelligence of the pupil, although the correlation was far from close. Obviously the correlation is more with a factor that enters into intelligence, namely, experience.[5]

Experiment of J. J. Weber to Evaluate Lantern Slides in Instruction

J. J. Weber[6] also made an interesting and significant experiment using lantern slides. He felt that "pictures are substitutes for actual visual situations; and obviously lantern slides, along with language, should provide a highly effective method of instruction."[7]

Problem:

This experiment was organized to determine how

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5. Ibid., p. 121.
6. Ibid., pp. 133-135.
7. Ibid., p. 133.

the lantern slide thus functions as a visual aid.

Procedure:

The experiment involved the "double-check" method, which was a combination of the rotation and equivalent-group method.

> The instructional material consisted of two lessons and two sets of lantern slides - one set on the manufacture of glass bottles and the other on manila hemp. In the first experimental unit the lesson on glass was taught to the "A" group of subjects with the aid of lantern slides, while to the "B" group of subjects it was taught without the slides. In the second unit the lesson on hemp was taught to the "A" group unaided and to the "B" group aided this time.[8]

Four types of tests were used to check up on the results - free-recall written report, completion tests, yes-no test, and concealed test.

Results:

The tests revealed that the use of lantern slides increased the scores of the children considerably. The "aided" lessons were also learned more thoroughly than the "unaided" ones.

Experiment of M. Meador to Evaluate Pictures in Instruction

Meador[9] also contributed an important experiment to the field of visual aids.

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8. Ibid., pp. 133-134.
9. Mildred Meador, "Are Pictures an Effective Aid in the Teaching of Geography?" Educational Method, November, 1931.

Problem:

A. To determine the real value of pictures as an effective aid in teaching.

B. To determine the method of presentation best adapted to secure the greatest gain in knowledge.

Procedure:

Ten countries were selected for study, and a film containing between twenty to thirty views was used as each country was studied. Three schools were selected for the experiment, using, however, only fourth, fifth, sixth, and seventh grade children.

In one school, designated "A", the lessons were taught verbally without pictures; in another school, designated "B", films were shown but discussions were discouraged; and in a third school, designated "C", the films were shown and the discussions were based entirely on the pictures.

Each class was given a test before the experiment began, another at the end of the experiment, and a third test was administered one week following the experiment.

Results:

School "A" gained less than either of the other

schools. The retention showed by school "A" at the end of the week was less than in schools "B" and "C".

School "B" gained more after the lesson than school "A" but less than school "C". School "B's" loss of retention was not so great as in school "A" but greater than in school "C".

School "C" showed a greater gain after the lesson than school "A" or school "B". School "C" showed a gain in retention at the end of the week while both other schools showed a loss.

Meador concluded that pictures aid in the teaching of geography in the elementary schools.

Experiments of W. W. Charters and Others to Evaluate Effect Motion Pictures Have Upon Youth

Although the other experiments included in this thesis are concerned with classroom activities, yet the findings of W. W. Charters[10] and his co-workers regarding motion pictures and youth are so significant it was felt desirable to include a summary of them here.

The Motion Picture Research Council sponsored this thorough investigation in order to determine just what effect motion pictures were having upon youth. Only commercial films produced by Hollywood for entertainment

10. W. W. Charters, Motion Pictures and Youth, A Summary (New York: The Macmillan Company, 1933).

purposes were used. This study was subsidized by the Payne Fund and was carried on for a period of four years, 1929 - 1932 inclusive. Even though these experiments employed "entertainment" films, yet the results proved that such films do exert a tremendous influence on the lives of children, a fact which must be recognized by educators at all times.

Problem:

To discover what effect motion pictures have upon youth, stressing the following:

A. How much information do children acquire from "movies"?

B. Do "movies" change attitudes of children?

C. Do "movies" stimulate the emotions of children?

D. Do "movies" affect the patterns of conduct of children?

Procedure:

In order to answer these questions, investigations were carried on by different educators, involving thousands of children. Careful statistical techniques were utilized throughout all the investigations.

Results:

A. Children, even those of the early age of

8 see half the facts in a picture and remember them for a surprisingly long time.

B. A single exposure to a picture may produce a measurable change in attitude.

C. Emotions are measurably stirred as the scenes of a drama unfold and this excitement may be recorded in deviations from the norm in sleep patterns, by visible gross evidences of bodily movement and by refined internal responses.

D. They constitute patterns of conduct in day-dreaming, phantasy, and action.[11]

Motion pictures, as revealed by these studies, are a potent medium of education.

Experiment of Wood and Freeman to Evaluate Motion Pictures in Instruction

Other educators were also realizing the power of motion pictures and decided to measure their value by experiments in the classroom. Wood and Freeman[12] were two of the pioneers in this field, and although their experiment was conducted fourteen years ago, it is still considered a classic. Authorities on audio-visual aids at the present time still consider it one of the most significant experiments ever made. For that reason it is

11. W. W. Charters, op. cit., p. 60.
12. Ben D. Wood, Frank Freeman, Motion Pictures in the Classroom (Boston: Houghton Mifflin Company, 1929).

included in this study. This experiment was conducted in 1928.

Problem:

A. Can films be produced which are correlated with standard courses of study?

B. Can the teaching value of these films when used to supplement the usual pedagogical devices of the teacher in the classroom be measured?

C. Is the educational value of the contributions of the films sufficient to justify the expenditure required to make them a regular part of the equipment of the schools?

Procedure:

The experiment was conducted in ten large city school systems - 11,000 children participating. Ten films in geography and ten films in general science were used. These films were especially produced for this investigation by the Eastman Kodak Company.

Classes in which the films were used were compared with classes which did not have the advantage of this device. The outcome of the teaching was measured by objective and essay tests.

Results:

In both geography and general science the film

instructed groups were superior to the non-film groups, according to the statistical evidence obtained from the tests.

Experiment of Knowlton and Tilton to Evaluate Motion Pictures in Instruction

Another famous experiment conducted about the same time was that by Daniel Knowlton and Warren Tilton.[13] This experiment is also considered highly significant by even present day authorities, and therefore has been included in this study. In this experiment ten films, known as the "Yale Chronicles of American Photoplays" were used.

Problem:

The experiment was conducted to measure:

A. The amount of historical knowledge possessed by the pupils.

B. The pupils' appreciation of the subject matter of history.

C. The pupils' power to retain what had been learned.

D. The pupils' greater interest in the subject.

Procedure:

The experiment was conducted in the Junior High School, New Haven, Connecticut. The ten photoplays were

13. Daniel Knowlton, Warren Tilton, "Improving the Quality of Instruction in History with the Aid of the Photoplay," The Historical Outlook, 20: 167-179, 229-239.

used with the experimental group and the results obtained were compared with those secured with regular class instruction.

Modern objective tests were prepared and administered to measure the contrasted methods of instruction. These tests were given at the beginning of the experiment, at the end of the experiment, and three months after the experiment was completed.

Results:

The experimental group, as a whole, made about a nineteen percent greater gain than did the control group.

Delayed recall tests revealed that the experimental group had learned more, forgotten more, and still retained more than the control group. The forgetting was chiefly in the category of time concepts.

This statement of Knowlton's, quoted by Weber, is quite significant:

> However inherently effective the photoplays may be - and the evidence submitted here indicates the potentialities of such material - it will only attain its highest degree of effectiveness when accompanied by good teaching, based upon an appreciation of the real goal to be attained and of the capacity of this material to contribute to its attainment. The teacher has at her command an instrument which, as these results indicate, will go far

toward economizing her time and effort and stimulating her pupils to secure those abiding values inherent in this vital subject.[14]

Experiment of C. Mead to Evaluate Different Procedures in the Use of Film in Instruction

While these first experiments were conducted primarily to prove the value of motion pictures over verbal instruction, later experiments were made to determine the best methods of presenting motion pictures in classroom instruction. Such an experiment was conducted by Mead.[15]

Problem:

To determine the relative merits of a "taught" lesson, a film lesson, and a "taught" and film lesson.

Procedure:

Children in the third, fourth, fifth, and sixth grades were taught by all three methods. In the "taught" lesson the teacher used the question and answer method; in the film lesson the children viewed the film without any comment or suggestions; and in the film and "taught" lesson the teacher had much preparation and discussion before and after viewing film.

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14. J. J. Weber, op. cit., p. 168.
15. Cyrus D. Mead, "Visual vs. Teaching Method - An Experiment," Educational Administration and Supervision, 13: 505-518, November, 1927.

Results:

The "taught" plus film lesson seemed to be best, although even the viewing of a film without discussion proved better than the usual textbook lesson, as it was four times out of seven better than just the "taught" lesson.

Experiment of J. J. Weber to Evaluate Films in Instruction

Weber[16] conducted another experiment which is worthy of note.

Problem:

This experiment attempted to test the value of instructional films.

Procedure:

Approximately six hundred 7B pupils were involved in this experiment. One group was instructed orally by the teacher; a second group studied the lesson from the printed page; a third group had the lesson depicted by a film; and a fourth group viewed the film under the oral guidance of the teacher. Tests followed each method of instruction.

Results:

The lowest average scores were made by the first

16. J. J. Weber, op. cit., pp. 151-152.

group - those instructed orally by the teacher; those in the second group, who studied alone, ranked next; the third group - those who only viewed the film - ranked next; and the highest scores were obtained by those who viewed the film under the direction of the teacher.

Experiment of Rulon to Evaluate Sound Motion Pictures in Instruction

All these experiments were made with silent films but with the introduction of sound films new problems were presented. Rulon[17] was among the first to conduct an experiment employing sound films.

Problem:

To measure the educational value of the sound motion picture in the teaching of general science in the ninth grade.

Procedure:

Three groups of children, rather evenly balanced mentally, chronologically, and in achievement in general science, were used. One group was taught by the textbook method; the second group used the textbook and the films; and the third group was utilized for measurement purposes only. Tests were administered to all groups; however, since the third group received no instruction their

17. Phillip J. Rulon, "The Sound Pictures in Science Teaching," Harvard Studies in Education (Cambridge: Harvard University Press, 1933, Vol. 20).

scores were considered as zero in respect to instruction. Tests were also given three and one-half months following the experiment.

Results:

According to the findings of Rulon, the teaching technique employing the sound motion film was twenty percent more effective from the instructional standpoint than the usual unaided lesson. According to the tests given after the experiment, the sound film group retained thirty-eight percent more than those taught by the textbook method.

Experiment of Arnspiger to Evaluate Sound Motion Pictures in Instruction

The experiment conducted by Arnspiger[18] in 1932 is very well known.

Problem:

To compare the effectiveness of sound pictures in general science and music with the usual methods of classroom instruction.

Procedure:

Fifth and seventh grade pupils were used - the control groups being taught by the usual methods while the experimental groups were given three showings of each sound

18. Varney C. Arnspiger, Measuring the Effectiveness of Sound Pictures as Teaching Aids (New York: Teachers College, Columbia University, 1933).

film along with each unit. Objective tests were used before the experiment, following each unit, and four weeks after the conclusion of the experiment.

Results:

According to the tests Arnspiger concluded that those children taught with the aid of sound pictures made greater gains than did those children taught by the usual methods. The results of the tests also showed that sound pictures made distinct contributions to the learning of pupils of both low and high intelligence levels. The average recall test gains over the initial test were greater for the experimental groups than the control groups in every unit of study.

Experiment of Krasker to Evaluate Different Procedures in the Use of Films in Instruction

In recent years many experiments have been made to test the advantages of different methods of utilizing sound or silent films in instruction, such as (1) showing the film twice to a group - the first time without comment and the second time for discussion and study; or (2) stopping the film as it is being shown to answer questions or make comments; or (3) showing films in auditoriums to large groups; or (4) utilizing films in the classrooms with

smaller groups.

Along these lines the experiment by Krasker[19] was quite significant.

Problem:

To investigate:

A. "The relative effectiveness of the 'Intermittent (stop-start) Method' of film technique with regular size classroom groups, as compared with large size or auditorium groups."

B. "The comparative efficiency of film lessons with the 'Non-Preparation Method' and film lessons with the 'Preparation Method'."[20]

Procedure:

About 800 eighth and ninth grade students were used in the experiment which extended over a period of three years. Six silent and two sound films, all dealing with general science, were utilized. Objective tests were employed to measure the progress of the children.

Results:

The author concluded from his study (1) that small groups progress more than large groups or groups in auditoriums; (2) the educational motion picture proved to be an effective instructional device for increasing

19. Abraham Krasker, "A Critical Analysis of the Use of Educational Motion Pictures by Two Methods," Educational Screen, September, 1941.
20. Ibid., pp. 303, 313.

factual learning; and (3) one of the present common practices of using educational motion pictures by merely showing the film without preparation of the class for the study of the motion picture is not an effective method.

Experiment of the Wisconsin Research Committee to Evaluate Radio in Instruction

In the field of audio aids an experiment was conducted by the Wisconsin Research Committee[21] as follows:

Problem:

To test the value of radio in teaching current events and music in the classroom.

Procedure:

Students in the sixth, seventh and eighth grades in fifty schools participated in the experiment - 25 schools were used as experimental and 25 as control. Both groups employed a well known current events magazine in their study, the control groups using only the magazine while the experimental groups had lessons over the radio accompanying their instructions with the magazine. Tests were given to measure the progress of the children.

This study also attempted to test the value of music lessons by radio; however, in this case some of the schools used in the experiments had little or no instruction.

21. Wisconsin University Research Committee, "Wisconsin Tests Value of Radio in the Classroom," School Life, 16: 104-105, February, 1931.

The "radio music" lessons consisted of four parts: (1) information about music; (2) some music played without comment; (3) rhythm exercises in which the radio listeners participated; and (4) the teaching of singing. The results were tested by asking each school in the experiment to make a scrapbook of musical information, and by having a professor of music judge subjectively the effectiveness of the teaching of rhythmic exercises and songs. Tests were also administered.

Results:

Judging by the results of the tests administered to all classes studying current events, the scores of those groups taught with the assistance of the radio exceeded the scores of those taught by only the magazines.

The scores made by the experimental groups on the music tests were also higher than those of the control groups. The authors concluded, therefore, that the radio is valuable in teaching current events and music.

In summarizing the studies reviewed in this chapter, it will be noted that audio-visual aids were quite superior to other forms of instruction in almost every experiment. However, there are always some limitations apparent in all experiments and these proved no exception.

In some experiments the methods of instruction were not typical of classroom procedures; in some the investigators failed to establish normal schoolroom teaching procedure in their investigations, while in others many investigators considered audio-visual aids as methods of instruction instead of as aids to be used as a part of instructional procedure.

A SURVEY OF THE AUDIO-VISUAL AIDS BEING USED BY THE LOUISVILLE WHITE FOURTH, FIFTH, AND SIXTH GRADE TEACHERS

CHAPTER V

A SURVEY OF THE AUDIO-VISUAL AIDS BEING USED BY THE LOUISVILLE WHITE FOURTH, FIFTH, AND SIXTH GRADE TEACHERS

The chief purpose of this study was to investigate:

1. The different types of audio-visual aids being used by the Louisville white fourth, fifth, and sixth grade teachers during 1940-1941.

2. Which of these aids were being used most frequently by these teachers, and why.

3. Which of these aids were being used least by these same teachers, and why.

4. In which aids the teachers manifested the most interest.

5. In which aids the teachers desired more information.

6. In what ways the audio-visual aids best answered their needs in teaching.

7. In what ways the audio-visual aids were a valuable media when supplemented with books in instruction.

This information was obtained by means of a questionnaire which was sent to 238* white teachers of grades four, five, and six in 42 elementary schools. Out of this number, 200 teachers answered the questionnaire.

Different Types of Aids Being Used

Of the 200 teachers replying, more of them used maps and globes during 1940-1941 than any other aid. Mounted pictures ranked second, charts and diagrams third. The other types, in the order of frequency of use were: objects, specimens, and models; graphs; radio; trips to civic institutions; motion pictures; phonograph records; trips to parks; trips to industrial plants; lantern slides; trips to observe physical features of earth; stereoscopes; filmstrips; microscope slides; and opaque projector. Additional data are given in Table I.

It will be further noted from Table I that only seven aids have been used by 50 percent or more of the Louisville intermediate teachers. The table also reveals that none of the aids requiring equipment are used as extensively as those aids not requiring mechanical equipment.

Extent of Use of Audio-Visual Aids

According to Table II maps and globes were used

* The writer did not differentiate between the grades since many teachers have mixed divisions as 4A-5B, 5A-6B.

TABLE I

USE OF AUDIO-VISUAL AIDS BY TWO HUNDRED LOUISVILLE WHITE FOURTH, FIFTH AND SIXTH GRADE TEACHERS

Aids	Actual Number		Percent	
	Using	Not Using	Using	Not Using
Maps and Globes	192	8	96	4
Mounted Pictures	184	16	92	8
Charts and Diagrams	164	36	82	18
Objects, Specimens, Models	146	54	73	27
Graphs	144	56	72	28
Radio	140	60	70	30
Trips to Civic Institutions	100	100	50	50
Motion Pictures	96	104	48	52
Phonograph Records	80	120	40	60
Trips to Parks	60	140	30	70
Trips to Industrial Plants	36	164	18	82
Lantern Slides	28	172	14	86
Trips to Observe Nature	28	172	14	86
Stereoscopes	24	176	12	88
Filmstrips	22	178	11	89
Microscope Slides	12	188	6	94
Opaque Projector	0	200	0	100

often[1] by 81 percent of the teachers, some[2] by 15 percent and never by 4 percent. The fact that most schools are equipped with maps and globes and that the majority of teachers are familiar with these aids probably accounted for their widespread use.

Table II further reveals that 64 percent of the teachers used mounted pictures often, 28 percent used them some and 8 percent never used them at all. The accessibility of many pictures and their comparative low cost no doubt contributed to their general use but, on the other hand, it is quite significant that only 64 percent of the teachers used this medium often when pictures can be utilized advantageously in so many ways.

Charts and diagrams were used often by 48 percent of the teachers, some by 34 percent and never by 18 percent, while objects, specimens, and models claimed 39 percent as constant users, 34 percent using sometimes, and 27 percent as never using. Since teachers are familiar with these aids they seem to provide much of this type in their instruction, though even these aids are probably not being used as extensively as possible, judging from the percentage claiming to be constant users.

A further examination of the data in Table II

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1. The term "often" as used here signifies daily use or several times a week.
2. The term "some" as used here signifies several times monthly. (These terms hereafter will carry the same meanings until otherwise indicated.)

TABLE II

EXTENT OF USE OF AUDIO-VISUAL AIDS BY TWO HUNDRED LOUISVILLE WHITE FOURTH, FIFTH, AND SIXTH GRADE TEACHERS

Aids	Actual Number Using			Percent Using		
	Often	Some	Never	Often	Some	Never
Maps and Globes	162	30	8	81	15	4
Mounted Pictures	128	56	16	64	28	8
Charts and Diagrams	96	68	36	48	34	18
Objects, Specimens, Models	78	68	54	39	34	27
Graphs	60	84	56	30	42	28
Radio	22	118	60	11	59	30
Trips to Civic Institutions	6	94	100	3	47	50
Motion Pictures	10	86	104	5	43	52
Phonograph Records	12	68	120	6	34	60
Trips to Parks	0	60	140	0	30	70
Trips to Industrial Plants	2	34	164	1	17	82
Lantern Slides	6	22	172	3	11	86
Trips to Observe Nature	0	28	172	0	14	86
Stereoscopes	4	20	176	2	10	88
Filmstrips	0	22	178	0	11	89
Microscope Slides	0	12	188	0	6	94
Opaque Projector	0	0	200	0	0	100

indicates that graphs, which rank fifth in extent of use (see Table I) were being used often in instruction by 30 percent of the teachers, some by 42 percent, and never by 28 percent.

The radio was used by 11 percent of the teachers often[3], 59 percent some[4], and 30 percent never. It is quite significant to note, according to the figures, that only 11 percent of the Louisville intermediate teachers used this medium often for with the number of portable radios available to teachers it seems incredible that this aid was not more extensively used.

Trips to civic institutions ranked seventh - 3 percent took this type of trip often[5], 47 percent some[6], and 50 percent never. The vast majority of teachers underscored the word "library" on the questionnaire, indicating that more of them visited the library than such places as the Post Office, Water Works, Board of Health, or other civic institutions.

It is quite significant that all the rest of the aids examined in this survey were not used by even 50 percent of the teachers (see Table II). The motion picture, for example, was used by only 5 percent of the teachers often, 43 percent some, while 52 percent never used it at

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3. The term "often" as used here signifies once a week or more.
4. The term "some" as used here signifies a couple of times a month or less.
5. The term "often" as used here signifies several times a term - a term being five months.
6. The term "some" as used here signifies twice a term or less. (These terms hereafter will carry the same meanings unless otherwise indicated.)

all (see Figure 1). Of the 48 percent of the teachers who used this aid, many of these stated that the films shown to their classes were those brought in by outside agencies such as the Dairy Council or Traffic Division.

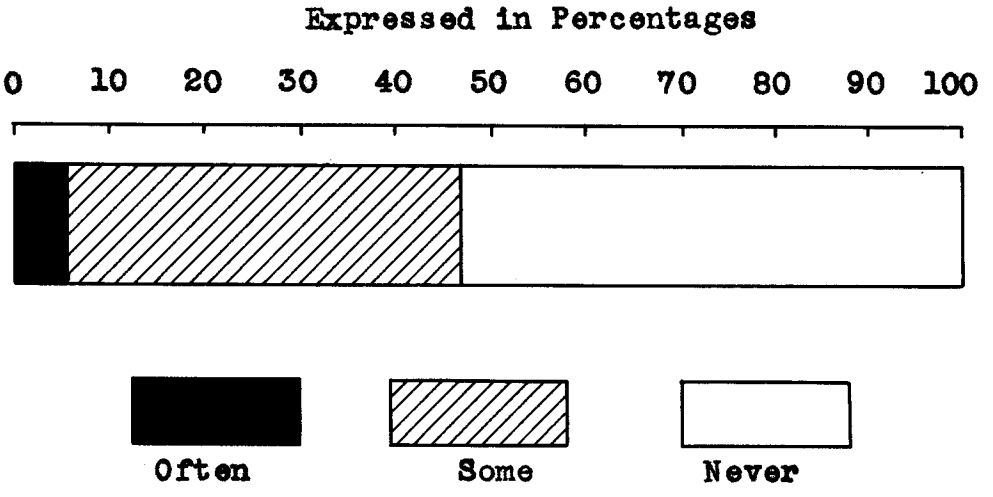

Figure 1.-Extent of use of motion pictures by Louisville white fourth, fifth, and sixth grade teachers.

In order to determine more accurately how many teachers were using films of their own choice (not including those films brought to the school by other agencies), the writer studied the records of Mr. R. E. Daugherty, assistant superintendent in charge of instructional supplies. These records revealed that only six schools, totaling about forty intermediate teachers, used the motion picture projectors during 1940-1941.

The investigator was also informed that only one elementary school has its own projector which is in good condition; two other schools have projectors but both are unusable. Inasmuch as the good projector is a silent one, the school owning it was among the six requisitioning the sound projectors from the Board of Education during 1940-1941.

Therefore, it can be determined that very few Louisville white fourth, fifth, and sixth grade teachers are securing films to meet the needs of their classroom instruction. The reasons listed by the teachers for not making more use of motion pictures and other mechanical aids will be presented later.

Phonograph records were used often by 6 percent of the teachers, some by 34 percent, and never by 60 percent (see Figure 2). Since the majority of schools have

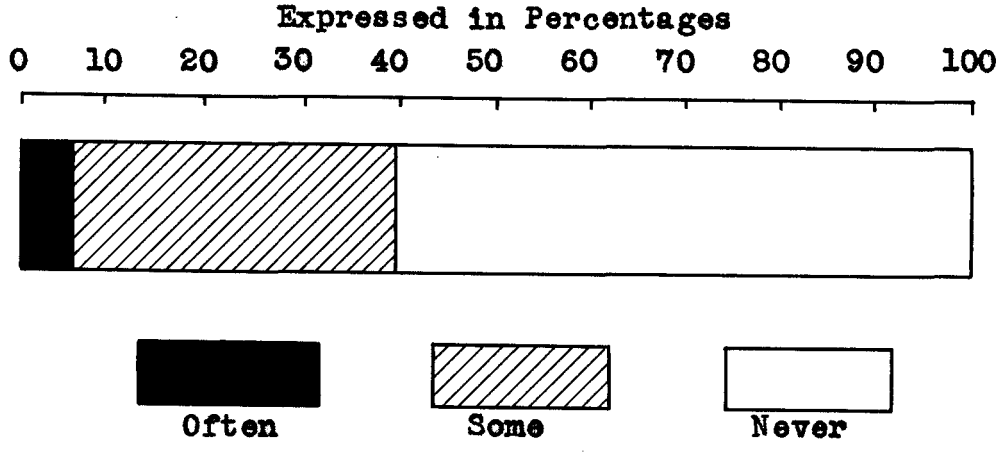

Figure 2.-Extent of use of phonograph records by Louisville white fourth, fifth, and sixth grade teachers.

victrolas these figures would seem to indicate that this aid is not being used as extensively as possible.

Trips to parks were taken sometimes by 30 percent of the teachers, 70 percent never making such excursions. One percent of the teachers took their classes to industrial plants often, 17 percent sometimes and 82 percent never took them. The remaining type of trip examined in the survey rated about the same results - 14 percent sometimes took classes or groups to observe physical features of the earth while 86 percent never did (see Figure 3).

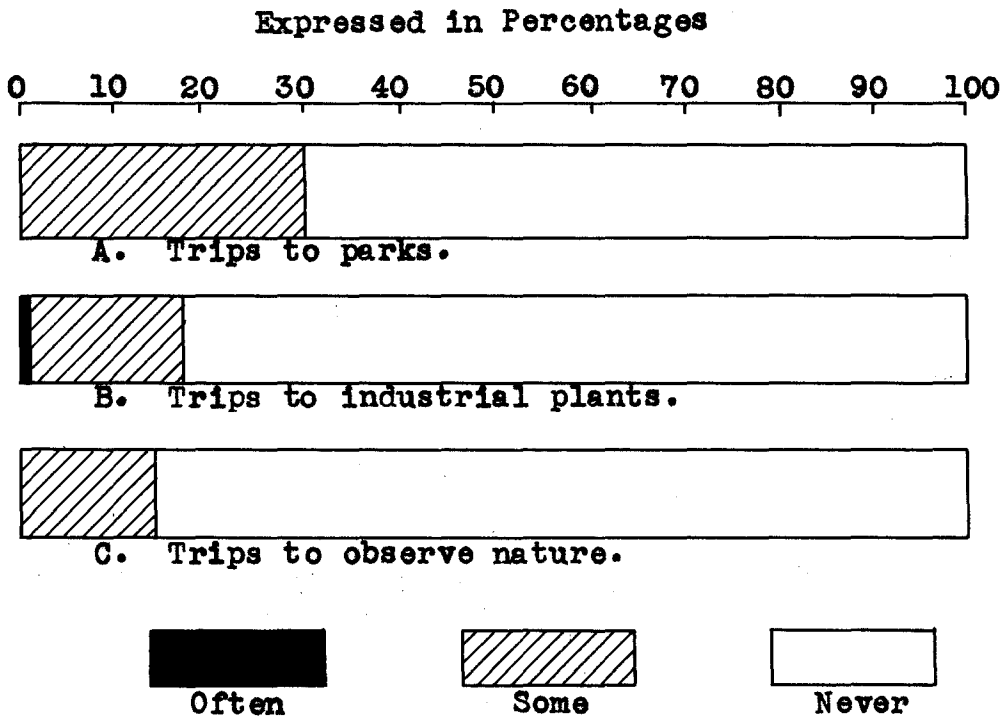

Figure 3.-Extent of use of excursions by Louisville white fourth, fifth, and sixth grade teachers.

Lantern slides, which ranked twelfth in extent of use, (see Table 1) were used often by 3 percent of the teachers, some by 11 percent and never by 86 percent. Only 2 percent of the teachers used stereoscopes often, 10 percent used them some and 88 percent never used them at all (see Figure 4). The Board of Education has 48 stereoscopes and 600 stereographs, but these figures would seem to indicate that only a few teachers used this aid.

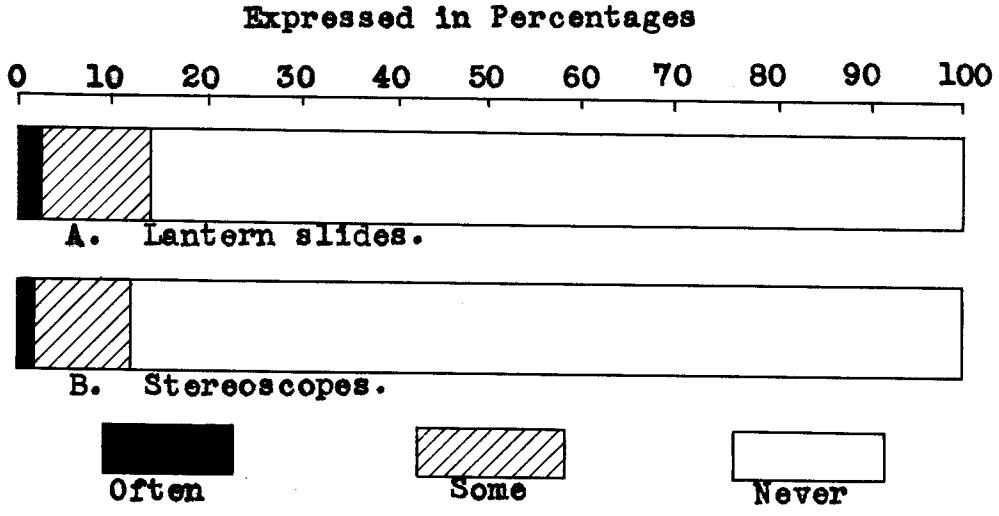

Figure 4.--Extent of use of lantern slides and stereoscopes by Louisville white fourth, fifth, and sixth grade teachers.

The filmstrip, another mechanical aid, seemed to fare no better as 11 percent claimed to have used it sometimes while 89 percent admitted never using it (see

Figure 5). Upon checking the records of Mr. R. E. Daugherty, it was learned that the two filmstrips owned by the Board of Education were not used by any school during 1940-1941. The fact that quite a few teachers know nothing of this aid (see Table III) no doubt accounts for its disuse.

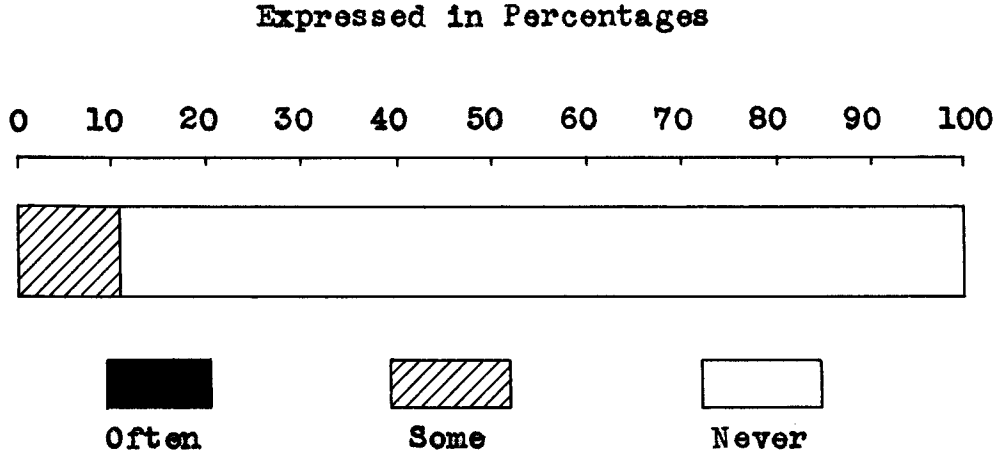

Figure 5.--Extent of use of filmstrips by Louisville white fourth, fifth, and sixth grade teachers.

Microscope slides were also very sparingly used - 6 percent sometimes used them but 94 percent never did.

The opaque projector, which is also property of the Board of Education, was not used by any teacher during 1940-1941. The investigator borrowed it once this year but found it so out-dated it was of no value in her teaching.

TABLE III

AIDS WITH WHICH A NUMBER OF LOUISVILLE WHITE FOURTH, FIFTH, AND SIXTH GRADE TEACHERS ARE UNFAMILIAR

Aids	Teachers Unfamiliar with Aid	
	Actual Number	Percent
Opaque Projector	86	43
Filmstrips	34	17
Stereoscopes	26	13
Lantern Slides	16	8
Microscope Slides	14	7
Motion Pictures	10	5
Phonograph Records	4	2
School Excursions	2	1
Radio	2	1

This may be one reason why it is not being utilized by the Louisville teachers, though probably the main reason is the fact that so many teachers know nothing of this aid (see Table III).

Reasons Listed by Teachers for Not Using Audio-Visual Aids

According to the survey the following reasons were given by the teachers for not making more use of audio-visual aids:

A. 58 percent claimed they are unable to operate the projectors.

B. 52 percent stated audio-visual aid materials (film, slides, filmstrips, records) are too expensive.

C. 40 percent claimed that they do not know where to locate material.

D. 28 percent said they were unable to secure material at desired time.

E. 22 percent stated that they were unable to secure suitable material for grade.

F. 20 percent claimed they were unable to secure projectors at desired time.

G. 4 percent stated their buildings or rooms are not equipped for projection.

Examining the foregoing figures, it will be noted that most of these reasons listed are a matter of administration. Showing the teachers how to operate projectors, getting the projectors and material to the teachers at time desired, sending out bulletins, informing teachers where to locate materials, and equipping the schools for projection are problems to be administered and directed by the School Board. Many cities have solved these problems by centralizing all the audio-visual aids in one department, supervised by a capable, qualified person to serve as a director. The director is then responsible for the purchasing, distributing, instructing, supervising, and maintaining of all audio-visual aids.

In many cities the superintendent, supervisors, and/or principal took the initiative in developing an audio-visual aid program. By having demonstrations, discussions, committee meetings, interesting lectures or courses in this field, they were able to arouse much interest, enthusiasm, and skill on the part of the teachers in the use of these aids. In some cities, however, the teachers were able to encourage more extensive purchasing of audio-visual aids by demonstrating to their superiors the great value gained in their usage in classroom instruction. Here in our city the situation seems to be more like the

latter. The feeling is more or less prevalent that when teachers are interested and ready for audio-visual aids they will demand them. The material is purchased and placed at the Board of Education where it can be obtained by any teacher upon request. No attempt, heretofore, had been made to interest or even acquaint the teachers with this material. However, this year (1942) one of the supervisors had a demonstration of several educational films. It is hoped that this will be the beginning of an audio-visual aid program here in the Louisville schools.

The reason which ranks second in importance by the Louisville teachers was that of the problem of expense. Purchasing or renting audio-visual aids is very often too expensive for an individual teacher or groups of teachers. Here again many cities have found that the purchasing of as many audio-visual aids as possible by the school board, to be utilized by the whole school system, is more economical and efficient than having each individual school or groups of teachers buy their own material. However, in some instances where school boards have not been able to purchase much of this material individual schools have bought their own audio-visual aids and have pooled this material among each other. In this way many teachers have been benefitted and while it is not the best plan it is at

least a beginning toward a regular audio-visual aid department under a capable and efficient director.

Audio-Visual Aids Unknown to Teachers

According to Table III it will be noted that many Louisville intermediate teachers are unfamiliar with some of the visual aids examined in this survey, especially those usually classified as mechanical aids. The figures in Table III indicate that:

A. 43 percent of the teachers knew nothing about the opaque projector.

B. 17 percent knew nothing about the filmstrips.

C. 13 percent were unfamiliar with stereoscopes.

D. 8 percent were unfamiliar with lantern slides.

E. 7 percent knew nothing about microscope slides.

F. 5 percent knew nothing about the motion picture.

The figures further reveal that all the Louisville white fourth, fifth, and sixth grade teachers were familiar with such aids as objects, specimens, and models, graphs; charts and diagrams; maps and globes; and mounted pictures while

only 1 percent admitted knowing nothing about the radio and school excursions and 2 percent had no knowledge of phonograph records.

Therefore Table III would seem to indicate that a number of Louisville teachers are unfamiliar with many of the audio-visual aids, especially those requiring projection. As was stated previously (pages 68 and 70) this is probably the chief reason for their lack of use. To remedy this situation demonstrations of all types of audio-visual aids should be presented to the teachers in order to acquaint them with these materials.

Audio-Visual Aids About Which Teachers Desire More Information

Examining the figures in Table IV it appears quite significant that again the aids requiring mechanical equipment are the ones about which the Louisville teachers are desirous of more information. According to the figures obtained from the questionnaire the following facts are revealed:

A. 26 percent of the teachers desired more information about the opaque projector.

B. 22 percent wished to know more about the motion picture and the filmstrip.

C. 14 percent desired more information about

TABLE IV

AUDIO-VISUAL AIDS ABOUT WHICH
TEACHERS DESIRE MORE INFORMATION

Aids	Teachers Desiring More Information	
	Actual Number	Percent
Opaque Projector	52	26
Filmstrips	44	22
Motion Pictures	44	22
Lantern Slides	28	14
Stereoscopes	20	10
School Excursions	16	8
Radio	12	6
Microscope Slides	12	6
Phonograph Records	8	4
Objects, Specimens, Models	6	3
Charts and Diagrams	4	2
Mounted Pictures	4	2
Maps and Globes	2	1

lantern slides.

D. 10 percent expressed a desire to learn more about stereoscopes.

The other audio-visual aids regarding which less than 10 percent of the teachers requested information are included in Table IV.

Comparing Table IV with Table III it would appear that those aids with which the majority of teachers admitted being unfamiliar, are also those about which many teachers are desirous of more information. Therefore it should prove beneficial to provide demonstration lessons for these teachers, showing the different types of audio-visual aids and their many uses. Bulletins containing reviews of the latest literature on this subject, or articles pertinent to this topic should be sent to all teachers requesting them.

Audio-Visual Aids in Which Teachers Are Most Interested

Table V reveals the following significant data:

A. 56 percent of the teachers showed an interest in school excursions - 19 percent of them being interested in visiting civic institutions, 17 percent in visiting industrial plants, 10 percent in taking classes to parks, and 10 percent permitting classes

TABLE V

AUDIO-VISUAL AIDS IN WHICH TEACHERS ARE MOST INTERESTED

Aids	Teachers Displaying Interest	
	Actual Number	Percent
School Excursions	112	56
Motion Pictures	96	48
Radio	82	41
Maps and Globes	76	38
Mounted Pictures	66	33
Objects, Specimens, Models	60	30
Phonograph Records	52	26
Charts and Diagrams	42	21
Graphs	38	19
Filmstrips	32	16
Lantern Slides	28	14
Stereoscopes	20	10
Opaque Projector	14	7
Microscope Slides	12	6

to observe nature.

B. 48 percent of the teachers were interested in motion pictures.

C. 41 percent were interested in the radio.

D. 38 percent were interested in maps and globes.

E. 33 percent were interested in mounted pictures.

F. 30 percent were interested in objects, specimens, and models.

G. 26 percent were interested in phonograph records.

For those aids which fall below 25 percent see Table V.

Examining the above data it will be observed that over half of the teachers are interested in school excursions, a medium with which the teachers are very familiar (see Table III). Since a large number of teachers are familiar and interested in "movies" and the radio as entertainment devices, many of them are becoming interested in these media for educational purposes.

It will further be noted that all the other aids rating 30 percent or more of the interest of the Louisville teachers are those aids with which the teachers are quite

familiar (see Table III) and are using extensively (see Table I).

Methods of Use*

This survey also included a study of the ways audio-visual material best answered the needs of the Louisville white fourth, fifth, and sixth grade teachers in their instruction. Table VI reveals that of the 192 teachers (see Table I) using maps and globes, 61 percent used them to answer specific questions that were assigned; 54 percent to introduce a unit or subject; 52 percent to gain additional information; and 44 percent to stimulate discussion. Thus it would appear, from the above figures, that the majority of the 192 teachers using maps and globes are making good use of this aid in their teaching. Table VI contains the additional ways the teachers have used maps and globes other than those mentioned above.

Next in use among the Louisville teachers were mounted pictures with a following of 184. Of this number 82 percent provided pictures to introduce a unit or subject; 67 percent to stimulate discussion; 54 percent to develop a keenness of observation; 53 percent to increase voluntary reading; 49 percent to gain additional information; and 48 percent to illustrate facts already known.

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* These methods were selected after a thorough study of the literature in this field.

TABLE VI

WAYS IN WHICH MAPS AND GLOBES BEST ANSWERED THE NEEDS OF ONE HUNDRED AND NINETY-TWO LOUISVILLE WHITE, FOURTH, FIFTH, AND SIXTH GRADE TEACHERS

How Used	Teachers Using	
	Actual Number	Per-cent
To answer specific questions	117	61
To introduce a unit or subject	104	54
To gain additional information	100	52
To stimulate discussion	84	44
To summarize or review	69	36
To solve problems previously presented	65	34
To present abstract subject matter in a concrete way	56	29
To illustrate facts already known	56	29
To develop keenness of observation	56	29
To aid in interpreting statistical information	42	22
To lead to further activities	42	22
To test	36	19
To increase voluntary reading	29	15
To develop a process	25	13
To develop desirable attitudes	21	11
To develop appreciation in music and art	4	2

Judging from the above percentages, it would seem that these 184 Louisville teachers are also making wise choice in their use of pictures. Because the other methods were not used by a sufficiently large number to be significant they have not been listed here. The reader will find this information in Table VII.

According to Table VIII, charts and diagrams, which were used by 164 teachers, were presented by 63 percent to aid in interpreting statistical information; by 43 percent as a summary or review; by 42 percent to present abstract subject matter in a concrete way; by 35 percent to stimulate discussion; and by 32 percent to illustrate facts already known. While charts and diagrams are of great value in teaching statistical information, they can be of much assistance in stimulating discussion, illustrating facts already known, gaining additional information, and solving problems previously presented. According to the above figures it would seem that many of the Louisville teachers are using charts and diagrams for statistical purposes only and are overlooking some of their other values (see Table VIII).

Objects, specimens, and models were used by 146 teachers. Seventy-nine percent of this number introduced a unit or subject with these media; 58 percent used them to

TABLE VII

WAYS IN WHICH MOUNTED PICTURES BEST ANSWERED THE NEEDS OF ONE HUNDRED AND EIGHTY-FOUR LOUISVILLE WHITE FOURTH, FIFTH, AND SIXTH GRADE TEACHERS

How Used	Teachers Using	
	Actual Number	Per-cent
To introduce a unit or subject	151	82
To stimulate discussion	123	67
To develop keenness of observation	99	54
To increase voluntary reading	98	53
To gain additional information	90	49
To illustrate facts already known	88	48
To develop appreciation in music and art	72	39
To present abstract subject matter in a concrete way	66	36
To lead to further activities	64	35
To summarize or review	57	31
To answer specific questions	55	30
To develop desirable attitudes	33	18
To solve problems previously presented	28	15
To develop a process	28	15
To test	22	12
To aid in interpreting statistical information	13	7

TABLE VIII

WAYS IN WHICH CHARTS AND DIAGRAMS BEST ANSWERED THE NEEDS OF ONE HUNDRED AND SIXTY-FOUR LOUISVILLE WHITE FOURTH, FIFTH, AND SIXTH GRADE TEACHERS

How Used	Teachers Using	
	Actual Number	Per-cent
To aid in interpreting statistical information	103	63
To summarize or review	71	43
To present abstract subject matter in a concrete way	69	42
To stimulate discussion	57	35
To illustrate facts already known	52	32
To gain additional information	48	29
To answer specific questions	43	26
To solve problems previously presented	43	26
To introduce a unit or subject	39	24
To develop keenness of observation	33	20
To test	30	18
To develop a process	28	17
To lead to further activities	25	15
To increase voluntary reading	20	12
To develop desirable attitudes	16	10
To develop appreciation in music and art	2	1

present abstract subject matter in a concrete way; 58 percent stimulated discussions by means of them; 41 percent used them to gain additional information; and 41 percent presented them to develop keenness of observation (see Table IX). These percentages probably indicate that these 146 Louisville teachers are using objects, specimens, and models to good advantage in their teaching.

According to the survey it was found that 144 Louisville teachers use graphs in their teaching, 83 percent furnishing them to aid in interpreting statistical data, which is no doubt their greatest value (see Chapter III). Graphs were also used by 44 percent as a summary while 41 percent used them to illustrate facts already known (see Table X).

The results of the questionnaire show that 140 Louisville white fourth, fifth, and sixth grade teachers are making use of the radio in their teaching, 79 percent of them employing this aid to develop appreciation in music. Forty percent of the teachers used the radio to gain additional information; 30 percent reported that the radio aided them in stimulating discussions; while 26 percent stated that the radio was an aid in developing desirable attitudes. These figures would seem to indicate that the majority of the 140 Louisville teachers utilizing the

TABLE IX

WAYS IN WHICH OBJECTS, SPECIMENS, AND MODELS BEST ANSWERED THE NEEDS OF ONE HUNDRED AND FORTY-SIX LOUISVILLE WHITE FOURTH, FIFTH, AND SIXTH GRADE TEACHERS

How Used	Teachers Using	
	Actual Number	Per-cent
To introduce a unit or subject	115	79
To present abstract subject matter in a concrete way	85	58
To stimulate discussion	85	58
To gain additional information	60	41
To develop keenness of observation	60	41
To lead to further activities	55	38
To illustrate facts already known	53	36
To increase voluntary reading	45	31
To answer specific questions	37	25
To summarize or review	32	22
To solve problems previously presented	31	21
To develop desirable attitudes	28	19
To develop appreciation in music and art	26	18
To develop a process	23	16
To test	10	7
To aid in interpreting statistical information	10	7

TABLE X

WAYS IN WHICH GRAPHS BEST ANSWERED THE NEEDS OF ONE HUNDRED AND FORTY-FOUR LOUISVILLE WHITE FOURTH, FIFTH, AND SIXTH GRADE TEACHERS

How Used	Teachers Using	
	Actual Number	Per-cent
To aid in interpreting statistical information	120	83
To summarize or review	63	44
To illustrate facts already known	59	41
To present abstract subject matter in a concrete way	58	40
To stimulate discussion	53	37
To answer specific questions	43	30
To introduce a unit or subject	40	28
To gain additional information	40	28
To solve problems previously presented	36	25
To develop keenness of observation	35	24
To develop a process	26	18
To lead to further activities	24	17
To test	23	16
To develop desirable attitudes	17	12
To increase voluntary reading	14	10
To develop appreciation in music and art	0	0

radio are using it for musical purposes, but are ignoring many of its other values (see Table XI).

Although only one-half of the Louisville teachers took their children on excursions (see Table I) many of them - 73 percent - reported that they found excursions of much value in helping the children gain additional information concerning a topic or subject they were studying. Sixty-nine percent of them stated that excursions stimulated discussions; 63 percent used them to develop keenness of observation; while 60 percent reported that excursions led to further activities. Excursions were also used by 56 percent to increase voluntary reading; by 53 percent to introduce a subject or unit; and by 51 percent to develop desirable attitudes. Thus these figures probably indicate that even though only one-half of the Louisville teachers are taking their children on trips, these 100 teachers are finding excursions of unlimited value in a variety of ways (see Table XII).

Table XIII reveals that the motion picture, which was utilized by 96 teachers (see Table I), was used by 55 percent of them to gain additional information; 40 percent to stimulate discussion; 39 percent to develop keenness of observation; 33 percent to develop desirable attitudes; 33 percent to increase voluntary reading; 33 percent to lead

TABLE XI

WAYS IN WHICH RADIO BEST ANSWERED THE NEEDS OF ONE HUNDRED AND FORTY LOUISVILLE WHITE FOURTH, FIFTH, AND SIXTH GRADE TEACHERS

How Used	Teachers Using	
	Actual Number	Per-cent
To develop appreciation in music and art	111	79
To gain additional information	56	40
To stimulate discussion	42	30
To develop desirable attitudes	36	26
To lead to further activities	34	24
To develop keenness of observation	21	15
To increase voluntary reading	21	15
To introduce a unit or subject	17	12
To summarize or review	15	11
To illustrate facts already known	15	11
To present abstract subject matter in a concrete way	13	9
To answer specific questions	8	6
To develop a process	7	5
To test	6	4
To solve problems previously presented	6	4
To aid in interpreting statistical information	3	2

TABLE XII

WAYS IN WHICH EXCURSIONS BEST ANSWERED THE NEEDS OF ONE HUNDRED LOUISVILLE WHITE FOURTH, FIFTH, AND SIXTH GRADE TEACHERS

How Used	Teachers Using	
	Actual Number	Per-cent
To gain additional information	73	73
To stimulate discussion	69	69
To develop keenness of observation	63	63
To lead to further activities	60	60
To increase voluntary reading	56	56
To introduce a unit or subject	53	53
To develop desirable attitudes	51	51
To develop appreciation in music and art	40	40
To answer specific questions	38	38
To summarize or review	31	31
To present abstract subject matter in a concrete way	28	28
To solve problems previously presented	28	28
To illustrate facts already known	20	20
To develop a process	11	11
To aid in interpreting statistical information	5	5
To test	2	2

to further activities; 32 percent to introduce a unit or subject; 31 percent as a summary or review; and 30 percent to illustrate facts already known. Judging from the above figures (see Table XIII) it would seem that the motion picture is being utilized in a variety of ways by at least one-third of the teachers using this medium, but that most of them are not familiar with its many advantages. This may be due to the fact that many of these 96 teachers are not securing and utilizing films of their own choice in connection with their teaching (see page 64), but are depending on outside agencies to furnish them occasionally with films on such topics as health and safety.

According to Table I, 80 teachers reported that they used phonograph records, and out of this number 96 percent used them to develop appreciation in music, which is probably their greatest value (see Table XIV).

Table XV shows that of the 28 Louisville teachers using lantern slides over one-half employed them to aid their classes in gaining additional information, and to stimulate discussion; about one-half used them as a summary or review, to develop keenness of observation, and to illustrate facts already known. See Table XV for further uses. These figures apparently indicate that although lantern slides are being used by only 28 teachers, these few

TABLE XIII

WAYS IN WHICH MOTION PICTURES BEST ANSWERED THE NEEDS OF NINETY-SIX LOUISVILLE WHITE FOURTH, FIFTH, AND SIXTH GRADE TEACHERS

How Used	Teachers Using	
	Actual Number	Per-cent
To gain additional information	53	55
To stimulate discussion	38	40
To develop keenness of observation	37	39
To develop desirable attitudes	32	33
To increase voluntary reading	32	33
To lead to further activities	32	33
To introduce a unit or subject	31	32
To summarize or review	30	31
To illustrate facts already known	29	30
To develop appreciation in music and art	25	26
To present abstract subject matter in a concrete way	20	21
To answer specific questions	14	15
To solve problems previously presented	12	13
To develop a process	7	7
To aid in interpreting statistical information	5	5
To test	3	3

TABLE XIV

WAYS IN WHICH PHONOGRAPH RECORDS BEST ANSWERED THE NEEDS OF EIGHTY LOUISVILLE WHITE FOURTH, FIFTH, AND SIXTH GRADE TEACHERS

How Used	Teachers Using	
	Actual Number	Per-cent
To develop appreciation in music and art	77	96
To lead to further activities	16	20
To develop desirable attitudes	16	20
To develop keenness of observation	12	15
To gain additional information	10	13
To stimulate discussion	10	13
To introduce a unit or subject	10	13
To summarize or review	8	10
To increase voluntary reading	6	7
To test	5	6
To illustrate facts already known	5	6
To present abstract subject matter in a concrete way	4	5
To answer specific questions	2	3
To solve problems previously presented	1	1
To develop a process	1	1
To aid in interpreting statistical information	0	0

TABLE XV

WAYS IN WHICH LANTERN SLIDES BEST ANSWERED THE NEEDS OF TWENTY-EIGHT LOUISVILLE WHITE FOURTH, FIFTH, AND SIXTH GRADE TEACHERS

How Used	Teachers Using	
	Actual Number	Per-cent
To gain additional information	16	56
To stimulate discussion	15	54
To summarize or review	14	50
To develop keenness of observation	13	46
To illustrate facts already known	12	43
To introduce a unit or subject	10	36
To answer specific questions	10	36
To lead to further activities	10	36
To present abstract subject matter in a concrete way	8	29
To develop desirable attitudes	8	29
To increase voluntary reading	8	29
To solve problems previously presented	6	22
To develop a process	5	18
To test	4	14
To develop appreciation in music and art	3	11
To aid in interpreting statistical information	1	4

teachers are utilizing them to good advantage.

Stereoscopes were used by 24 Louisville teachers, fourteen of these stating that stereoscopes were valuable in developing keenness of observation, while one-half of them provided stereoscopes to assist their children in gaining additional information on some topic studied. Stereoscopes were used to stimulate discussion by nine of the teachers and to increase voluntary reading by eight of them. Thus, judging from the above figures, it would seem that the small group of Louisville teachers utilizing stereoscopes are employing them in their teaching quite effectively. For further uses see Table XVI.

Twenty-two Louisville teachers utilized the filmstrip, one-half of them employing this aid to gain additional information. Ten of the teachers used the filmstrip to develop desirable attitudes while nine reported this aid valuable in the following ways - to introduce a unit or subject, to stimulate discussion, to increase voluntary reading, and to lead to further activities. For further uses see Table XVII. These figures probably indicate that the filmstrip is being used effectively by a small group of Louisville teachers.

Of the 12 Louisville teachers using microscope

TABLE XVI

WAYS IN WHICH STEREOSCOPES BEST ANSWERED THE NEEDS OF TWENTY-FOUR LOUISVILLE WHITE FOURTH, FIFTH, AND SIXTH GRADE TEACHERS

How Used	Teachers Using	
	Actual Number	Per-cent
To develop keenness of observation	14	58
To gain additional information	12	50
To stimulate discussion	9	38
To increase voluntary reading	8	34
To lead to further activities	7	29
To illustrate facts already known	6	25
To introduce a unit or subject	5	21
To develop desirable attitudes	5	21
To summarize or review	3	13
To present abstract subject matter in a concrete way	3	13
To test	3	13
To develop appreciation in music and art	3	13
To solve problems previously presented	2	8
To develop a process	2	8
To answer specific questions	1	4
To aid in interpreting statistical information	1	4

TABLE XVII

WAYS IN WHICH FILMSTRIPS BEST ANSWERED THE NEEDS OF TWENTY-TWO LOUISVILLE WHITE FOURTH, FIFTH, AND SIXTH GRADE TEACHERS

How Used	Teachers Using	
	Actual Number	Percent
To gain additional information	11	50
To develop keenness of observation	10	45
To introduce a unit or subject	9	41
To stimulate discussion	9	41
To increase voluntary reading	9	41
To lead to further activities	9	41
To illustrate facts already known	8	36
To present abstract subject matter in a concrete way	7	32
To develop desirable attitudes	7	32
To answer specific questions	6	27
To summarize or review	5	23
To develop a process	5	23
To solve problems previously presented	4	18
To develop appreciation in music and art	4	18
To test	1	5
To aid in interpreting statistical information	1	5

slides in their teaching, one-half of them found these slides useful in presenting abstract subject matter in a concrete way, and in developing keenness of observation. Five of the teachers used them to stimulate discussion and to lead to further activities, while one-third of them found them helpful in developing desirable attitudes and in increasing voluntary reading. These figures seem to indicate that microscope slides are being used advantageously by a very small group of Louisville teachers (see Table XVIII).

Value of Audio-Visual Aids When Supplemented With Books in Instruction

The investigator wished to determine how valuable the Louisville teachers considered audio-visual aids in instruction when supplemented with books; therefore, this problem was included in the questionnaire. A list of fifteen main advantages of audio-visual aids was submitted. These fifteen advantages were selected after a careful study of many important scientific experiments and the writings of the most prominent audio-visual aid authorities.

The teachers were to express their opinions by either agreeing or disagreeing with each statement. The results are shown in the following table. From this table it will be noted that the majority of the 200 Louisville

TABLE XVIII

WAYS IN WHICH MICROSCOPE SLIDES BEST ANSWERED THE NEEDS OF TWELVE LOUISVILLE WHITE FOURTH, FIFTH, AND SIXTH GRADE TEACHERS

How Used	Teachers Using	
	Actual Number	Per-cent
To present abstract subject matter in a concrete way	6	50
To develop keenness of observation	6	50
To stimulate discussion	5	42
To lead to further activities	5	42
To develop desirable attitudes	4	33
To increase voluntary reading	4	33
To summarize or review	3	25
To gain additional information	3	25
To answer specific questions	2	17
To illustrate facts already known	2	17
To introduce a unit or subject	1	8
To develop a process	1	8
To test	1	8
To develop appreciation in music and art	1	8
To solve problems previously presented	0	0
To aid in interpreting statistical information	0	0

teachers questioned agreed with most of the statements that audio-visual aids are a valuable media when supplemented with books in instruction. However, it will be noted that many teachers expressed different viewpoints on three of the above statements as listed in Table XIX; 53 percent agreed that audio-visual aids are valuable in lessening problems of discipline, 26 percent disagreed and 21 percent expressed no opinion. Sixty-two percent agreed that visual aids provide individual instruction for pupils, 18 percent disagreed, and 20 percent expressed no opinion. The third statement in which there was a difference of opinion was that in regard to the effects of audio-visual aids on economy of time in learning. Sixty-four percent agreed, 17 percent disagreed, and 19 percent expressed no viewpoint. However, it is quite significant to note that many scientific experiments have proved the affirmative of all three of these statements (see Chapter IV).

Suggestions and Recommendations Made by Louisville Teachers for Establishing an Audio-Visual Aid Program

The questionnaire also allowed the teachers to offer suggestions and recommendations for establishing an audio-visual aid program in the Louisville public schools. The following suggestions were advanced by many teachers:

1. The Board of Education should provide more

TABLE XIX

WAYS IN WHICH AUDIO-VISUAL AIDS ARE VALUABLE IN INSTRUCTION WHEN SUPPLEMENTED WITH BOOKS

Ways in Which Audio-Visual Aids Prove Valuable	Number Answering Yes	Number Answering No	Number Not Answering	Percent Answering Yes	Percent Answering No	Percent Not Answering
Arouse interest of children	190	0	10	95	0	5
Provide a means of enriching experience of pupils	188	0	12	94	0	6
Increase participation in classroom discussion	184	0	16	92	0	8
Increase the learning of pupils	182	4	14	91	2	7
Enrich and vary classroom activity	182	4	14	91	2	7
Stimulate narration and discussion	180	4	16	90	2	8
Increase the retention of material	172	4	24	86	2	12
Bring pupils into direct contact with real experiences	172	8	20	86	4	10
Aid in teaching backward children	170	8	22	85	4	11
Aid class in interpreting difficult facts	168	10	22	84	5	11
Provide a real opportunity for choosing, purposing, planning, executing and evaluating on part of pupils	166	10	24	83	5	12
Increase cooperation and discussion	164	6	30	82	3	15
Effects on economy of time in learning	128	34	38	64	17	19
Provide individual instruction	124	36	40	62	18	20
Lessen problems of discipline	106	52	42	53	26	21

audio-visual aid material for instruction.

2. Some plan similar to our present traveling library should be established to distribute audio-visual aid material throughout the school system.

3. Bulletins should be provided to inform teachers where audio-visual aids can be obtained.

4. Teachers should be instructed how to operate projectors.

To summarize the principal findings of this survey as discussed in this chapter, it will be noted that:

1. The majority of the 200 Louisville teachers questioned are utilizing more extensively the non-mechanical aids than those which require machines for projection.

2. Many of these Louisville teachers are not utilizing mechanical aids because of their inability to operate projectors and because these audio-visual aids are too expensive.

3. Many of these Louisville teachers admit being totally unfamiliar with some of these aids, especially the mechanical ones.

4. The majority of the 200 Louisville teachers replying to the questionnaire are interested in the aids with which they are most familiar - the motion

picture and radio probably attaining a high percentage because of their entertainment value.

5. Quite a number of teachers desire more information about many of these aids, especially those requiring projection.

6. The majority of these 200 Louisville teachers are utilizing these aids to good advantage in their instruction, with the probable exception of charts and diagrams, the radio, and the motion picture.

7. The majority of these Louisville teachers consider audio-visual aids valuable media when supplemented with books in instruction.

8. Many Louisville teachers desire more audio-visual aids to be provided for their instruction.

CONCLUSIONS AND RECOMMENDATIONS

CHAPTER VI

CONCLUSIONS AND RECOMMENDATIONS

As was shown in Chapter V, the majority of Louisville white teachers in the fourth, fifth, and sixth grades are using maps and globes, mounted pictures, and charts and diagrams more than any other aid. Inasmuch as the Board of Education has provided the Louisville schools with maps and globes for many years, the majority of the white fourth, fifth, and sixth grade teachers are, of course, familiar with these aids and use them extensively. Since mounted pictures and charts and diagrams are easily obtainable and are comparatively inexpensive many Louisville teachers are also very familiar with these aids and are utilizing them extensively.

However, it is also apparent that many Louisville teachers know very little about some of the audio-visual aids examined in this survey. According to the results obtained in this survey, a great number of Louisville teachers are quite unfamiliar with such aids as the filmstrip, opaque projector, stereoscopes and motion pictures, and are therefore using these aids very meagerly (see Table I, page 60 and Table III, page 69).

Many Louisville teachers evidently do not know

that the Louisville Board of Education has two filmstrip projectors with twenty-six films relating to the United States and its possessions, has three Ampro sound motion picture projectors, one opaque projector, and forty-eight stereoscopes with a complete set of stereographs dealing with practically every subject. All this material can be borrowed from the Board of Education by any teacher at any time. These supplies should be in constant demand and use and yet, according to the results of the survey, it can be seen that only twenty-two teachers out of the 200 questioned used the filmstrip, ninety-six used the motion picture, none the opaque projector (see Chapter V, page 68), and twenty-four the stereoscopes. Therefore, it would seem most practicable to inform the teachers of all the audio-visual aids which the Board of Education has on hand and which can be borrowed by the teachers whenever needed.

An important reason listed by the teachers for not using more mechanical aids was that of not being able to operate projectors. The filmstrip projector is very easily manipulated and could even be operated by a fifth or sixth grade child. While the motion picture projector requires more skill, yet any teacher can learn how to operate it in several lessons. Since these aids are most effective when used by a teacher in her own classroom situation each

teacher should endeavor to operate the projectors herself.

Over half of the teachers stated that they felt that audio-visual aids are too expensive. This complaint is a just one as projectors and films are quite costly. If each school could purchase one film, these films could be placed at the Board of Education and be used by all the teachers throughout the school system. Thus a fairly good film library would be begun which no doubt would increase as teachers become more familiar and interested in these aids.

> It is interesting to note that the great majority of the leading cities of the United States have well-organized and functioning visual instruction departments. A small part of the list includes such familiar names as Birmingham, Phoenix, Berkeley, Long Beach, Los Angeles, San Diego, San Francisco, Pueblo, Hartford, Bridgeport, Washington, D. C., Atlanta, Bloomington, Gary, Indianapolis, Sioux City, Atchison, Winfield, Cambridge, Detroit, Kalamazoo, Hibbing, Red Wing, Kansas City, St. Louis, Montclair, Newark, Trenton, Albany, Ithaca, New York City, Schenectady, Winston-Salem, Chicago, Cleveland, Toledo, Tulsa, Portland, Erie, Pittsburgh, Philadelphia, Reading, Scranton, Providence, San Antonio, Richmond, Seattle, and many others in all parts of the United States.[1]

Many teachers stated that they did not know where to locate this type of material. The teachers should, of course, be informed of all the numerous places where audio-visual aids may either be purchased, rented, or secured free of charge.

Another group, smaller in number, claimed that they

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1. Ellsworth C. Dent, The Audio-Visual Handbook (Chicago: The Society for Visual Education, 1939), p. 5.

were not able to secure the material or the projector at the time they desired. This is a just complaint, especially in securing motion picture films. Since the Louisville teachers must secure most of their films from the University of Kentucky or from film companies out of the state (which deliver films to teachers all over the country) they often are unable to secure films at the time desired. As was stated before, if a film library could be advanced here in Louisville, a system could be provided which would enable the teachers to secure films at times they wish.

Making these audio-visual aids available to the teachers, and demonstrating to them how to operate projectors are just the initial steps. The most important phase of audio-visual aid education is that of instructing the teachers in the proper use of these aids. For if teachers are not properly trained, much of this material will be incorrectly used. Demonstration lessons should be presented displaying correct procedures to be employed in utilizing audio-visual aids in instruction. Bulletins relative to this topic should be sent to the teachers quite frequently. Classes in the effective use of audio-visual aids should be offered to the teachers in service. Fortunately, the University of Louisville has offered such a course during the last several summers. This course has stimulated the

interest of a number of Louisville teachers in audio-visual aids and has ably assisted them in classroom use of same. Attending classes of this type should be required of every person entering the teaching profession. Study groups should also be formed to make a detailed study of these aids. Committees of teachers should be encouraged to meet and plan discussions on these topics.

The following recommendations have either been suggested by the teachers or grew out of this survey:

1. More audio-visual aid material should be provided for the white fourth, fifth, and sixth grade Louisville teachers.

2. Teachers should be made aware of the effectiveness of audio-visual aids by demonstration lessons, bulletins, suggested readings, lectures, and interviews.

3. Lessons in operating projectors should be given to all the teachers.

4. A bulletin listing the latest audio-visual aid materials available should be mailed at least once a year to teachers. The price, source of supply, type and use should be included in such a bulletin.

5. Courses stressing types and advantages of audio-visual aids should be offered to teachers.

6. All principals should, by correct administration and supervision, encourage and promote audio-visual aid programs in their respective schools.

It is hoped that the findings of this investigation will result in measures being taken to acquaint teachers with the many advantages of audio-visual aids in classroom instruction to the extent that they will be more widely used. While it is realized that this survey is far from complete, and many questions remain unanswered, yet the investigator feels that a small contribution has been made in the field of education by examining a problem which heretofore has been neglected insofar as the Louisville public schools are concerned.

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APPENDIX

SAMPLE OF LETTER AND QUESTIONNAIRE MAILED TO

EVERY LOUISVILLE WHITE ELEMENTARY SCHOOL

Louisville, Kentucky

November 29, 1941.

Dear Miss _____:

Dr. Z. E. Scott has kindly consented to my making a study in our elementary schools to determine which types of audio-visual aid material are being used, about how frequently, the ways they are being used, and their value to teachers in instruction.

Because I am extremely interested in this subject, I am making this survey as part of my thesis.

I have made my questionnaire as concise as possible so that it can be answered in a very short time. Will you kindly submit the questionnaire to each of your fourth, fifth, and sixth grade teachers to be answered by them? If possible, I would like to have the questionnaire returned to me by December 16.

Allow me to express my sincerest appreciation to you and your teachers for your cooperation. I will be glad to send you the results of my survey if you so desire.

Yours truly,

Olga Schmutz

George W. Morris School - 6A-B

Inclosure:
Questionnaire

I. Did you use any of the following audio-visual aid materials during 1940-1941?

	Never	How Frequently (approximately)	Check Those about Which You Know Nothing	Check Those in Which You Are Most Interested	Check Those about Which You Desire More Information
School Excursion					
A. Trips to industrial plants					
B. Trips to parks					
C. Trips to civic institutions (post office, library, etc.)					
D. Trips to observe physical features of the earth (river, hills, stars, clouds, etc.)					
Objects - Specimens - Models					
Graphs					
Charts and Diagrams					
Maps and Globes					
Mounted Pictures					
Opaque Projector					
Stereoscopes					
Lantern Slides					
Filmstrips					
Motion Pictures					
Microscope Slides					
Phonograph Records					
Radio					

II. If there are any audio-visual aids listed on reverse side that you have never used, or have used very seldom, please check the reasons given below that apply to your case.

1. Unable to operate projector. _____
2. Do not know where to locate material (filmstrip, films, etc.) _____
3. Materials (films, slides, filmstrips, etc.) are too expensive. _____
4. Unable to secure material at desired time. _____
5. Unable to secure projector at desired time. _____
6. Unable to secure suitable material for work or grade. _____

List any other reason not given above.

_____

_____

_____

_____

_____

III. Check the following ways in which audio-visual material has best answered your need in teaching.

	Excursion	Objects Specimens Models	Graphs	Charts Diagrams	Maps and Globes	Mounted Pictures	Opaque Projector	Stereo-scopes	Lantern Slides	Film-strips	Motion Pictures	Microscope Slides	Phonograph Records	Radio
To introduce a unit, subject, etc.														
To summarize or review														
To present abstract subject matter in a concrete way														
To stimulate discussion														
To answer specific questions that were assigned														
To illustrate facts already known														
To gain additional information														
To solve problems previously presented														
To develop a process														
To be used as a test														
To aid in interpreting statistical information														
To develop keenness of observation														
To develop desirable attitudes														
To increase voluntary reading														
To lead to further activities														
To develop appreciation in music and art														

IV. Do you agree that visual aids are a valuable media when supplemented with books in instruction because they:

	Yes	No		Yes	No
Arouse interest of children.	___	___	Provide a real opportunity for choosing, purposing, planning, executing and evaluating on the part of pupils.	___	___
Increase the learning of pupils.	___	___	Stimulate narration and discussion.	___	___
Increase the retention of material.	___	___	Increase cooperation and discussion.	___	___
Increase participation in classroom discussion.	___	___	Effects on economy of time in learning.	___	___
Aid class in interpreting difficult facts.	___	___	Aid in teaching backward children.	___	___
Lessen problems of discipline.	___	___	Enrich and vary classroom activity.	___	___
Provide individual instruction for pupils.	___	___			
Bring pupils into direct contact with real experiences.	___	___			
Provide a means of enriching experience of pupils.	___	___			

V. What suggestions or recommendations could you make for establishing an audio-visual aid program?

_____

_____

_____

_____

_____

COMPLETE TABULATION OF RESULTS OBTAINED

FROM FINDINGS OF THE QUESTIONNAIRE

I. Did you use any of the following audio-visual aid materials during 1940-1941?

	(Expressed in Percentages)					
		How Frequently (approximately)		Check Those about Which You Know Nothing	Check Those in Which You Are Most Interested	Check Those about Which You Desire More Information
	Never	Some	Often			
School Excursion						
A. Trips to industrial plants	82	17	1	--	17	2
B. Trips to parks	70	30	--	--	10	--
C. Trips to civic institutions (post office, library, etc.)	50	47	3	--	19	1
D. Trips to observe physical features of the earth (river, hills, stars, clouds, etc.)	86	14	--	1	10	5
Objects, Specimens, Models	27	34	39	--	30	3
Graphs	28	42	30	--	19	--
Charts and Diagrams	18	34	48	--	21	2
Maps and Globes	4	15	81	--	38	1
Mounted Pictures	8	28	64	--	33	2
Opaque Projector	100	--	--	43	7	26
Stereoscopes	88	10	2	13	10	10
Lantern Slides	86	11	3	8	14	14
Filmstrips	89	11	--	17	16	22
Motion Pictures	52	43	5	5	48	22
Microscope Slides	94	6	--	7	6	6
Phonograph Records	60	34	6	2	26	4
Radio	30	59	11	1	41	6

II. If there are any audio-visual aids listed on reverse side that you have never used, or have used very seldom, please check the reasons given below that apply to your case.

1. Unable to operate projector. 58%
2. Do not know where to locate material (filmstrip, films, etc.) 40%
3. Materials (films, slides, filmstrips, etc.) are too expensive. 52%
4. Unable to secure material at desired time. 28%
5. Unable to secure projector at desired time. 20%
6. Unable to secure suitable material for work or grade. 22%

List any other reason not given above.

4% claimed building not equipped for projection.

III. Check the following ways in which audio-visual material has best answered your need in teaching.

	Excursion	Objects Specimens Models	Graphs	Charts Diagrams	Maps and Globes	Mounted Pictures	Opaque Projector	Stereoscopes	Lantern Slides	Filmstrips	Motion Pictures	Microscope Slides	Phonograph Records	Radio
	(Expressed in Percentages)													
To introduce a unit, subject, etc.	53	79	28	24	54	82		21	36	41	32	8	13	12
To summarize or review	31	22	44	43	36	31		13	50	23	31	25	10	11
To present abstract subject matter in a concrete way	28	58	40	42	29	36	N	13	29	32	21	50	5	9
To stimulate discussion	69	58	37	35	44	67	E	38	54	41	40	42	13	30
To answer specific questions that were assigned	38	25	30	26	61	30	V	4	36	27	15	17	3	6
To illustrate facts already known	20	36	41	32	29	48	E	25	43	36	30	17	6	11
To gain additional information	73	41	28	29	52	49		50	56	50	55	25	13	40
To solve problems previously presented	28	21	25	26	34	15	R	8	22	18	13	0	1	4
To develop a process	11	16	18	17	13	15		8	18	23	7	8	1	5
To be used as a test	2	7	16	18	19	12		13	14	5	3	8	6	4
To aid in interpreting statistical information	5	7	83	63	22	7	U	4	4	5	5	0	0	2
To develop keenness of observation	63	41	24	20	29	54	S	58	46	45	39	50	15	15
To develop desirable attitudes	51	19	12	10	11	18	E	21	29	32	33	33	20	26
To increase voluntary reading	56	31	10	12	15	53		34	29	41	33	33	7	15
To lead to further activities	60	38	17	15	22	35	D	29	36	41	33	42	20	24
To develop appreciation in music and art	40	18	0	1	2	39		13	11	18	26	8	96	79

IV. Do you agree that visual aids are a valuable media when supplemented with books in instruction because they:

	Yes (%)	No (%)		Yes (%)	No (%)
Arouse interest of children.	95	0	Provide a real opportunity for choosing, purposing, planning, executing and evaluating on the part of pupils.	83	5
Increase the learning of pupils.	91	2	Stimulate narration and discussion.	90	2
Increase the retention of material.	86	2	Increase cooperation and discussion.	82	3
Increase participation in classroom discussion.	92	0	Effects on economy of time in learning.	64	17
Aid class in interpreting difficult facts.	84	5	Aid in teaching backward children.	85	4
Lessen problems of discipline.	53	26	Enrich and vary classroom activity.	91	2
Provide individual instruction for pupils.	62	18			
Bring pupils into direct contact with real experiences.	86	4			
Provide a means of enriching experience of pupils.	94	0			

V. What suggestions or recommendations could you make for establishing an audio-visual aid program? *

_____

_____

_____

_____

* These have been incorporated in Chapters V and VI.

VISUAL INSTRUCTION EQUIPMENT OF LOUISVILLE BOARD OF EDUCATION

VISUAL INSTRUCTION EQUIPMENT OF LOUISVILLE BOARD OF EDUCATION - 1942

Quantity	Equipment
3	16 mm. Sound on Film Projectors
1	Glass Slide and Opaque Projector
2	Strip Film Projectors
48	Stereoscopes
22	Filmstrips - Geography of the United States A. New England B. Appalachian Mountains and Valleys C. Atlantic Coastal Plain and Piedmont Plateau D. Gulf Coastal Plain E. Inland Seas and Waterways F. Midwest Plains and Plateaus G. Mid-South Plains and Plateaus H. Rocky Mountains and Plateaus I. Pacific Slope J. Alaska, Panama Canal Zone, Hawaiian Islands, Outlying Possessions
600	Slides and Stereographs - "Keystone Set" of Lantern Slides and Stereographs I. Geography A. Geographical Classification and Title List B. People of all Lands C. Production and Manufacturing D. Transportation E. Markets and Marketing F. Natural Forms and Forces G. Zones and Their Effects on Life, Elevation of Land, and Its Effect on Life H. Geography by Nations I. Earth Neighbors II. History and Civics A. Foreign Beginnings of American History

Quantity	Equipment
	B. Foundations of the American Nation
	C. The Development of Our Nation
	D. America of Today - Our Resources - Preparedness
	E. Government
	F. Community Civics
	G. The Cities of the World
	III. English
	A. Literary Subjects and Settings
	B. English Composition
	IV. Agriculture
	A. Soils
	B. Farm Crops
	C. Garden, Orchard, and Woodlot
	D. Animal Husbandry
	E. Farm Management - Farm Machinery
	F. Farm Home and Farm Life
	V. Nature Study
	A. Plants and Plant Associations
	B. Animals
	C. Outdoor Life
	D. Vocational Guidance
	VI. Domestic Science and Art
	A. Industry Supplying the Home
	B. Food and Cookery
	C. Textiles and Clothing
	D. Household Administration
	VII. Industrial Arts
	A. Industrial Design - Including Architecture
	B. Wood
	C. Metals - Sources and Uses
	D. Concrete, Stone, Brick and Tile
	E. Local Industries
	F. Hygiene - Health Habits
	VIII. Fine Arts
	A. Drawing - Study of Stereographs and Slides to Show Elements of Art

Quantity	Equipment
	B. House Design and Decoration, Costume Design
	C. Photography
	IX. For the Little Folks
	A. Children of the World, Including Home Life
	B. Plants and Animals
	C. Reading
	D. Some Things We Eat: Some Things We Wear
	E. Home Geography
	F. Travelogue and Lecture Suggestions